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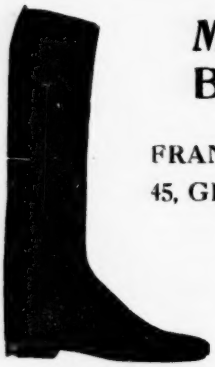

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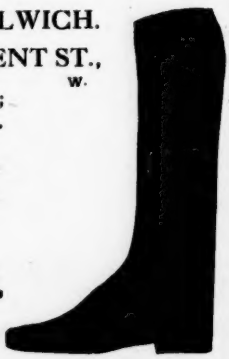

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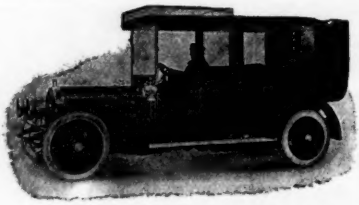

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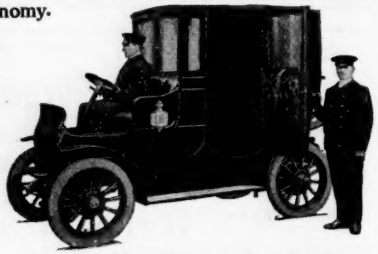

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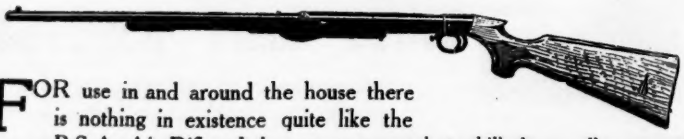

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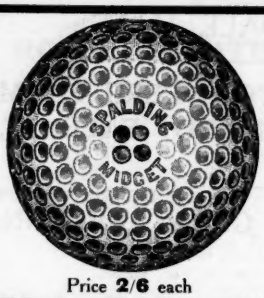

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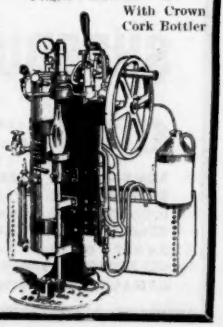

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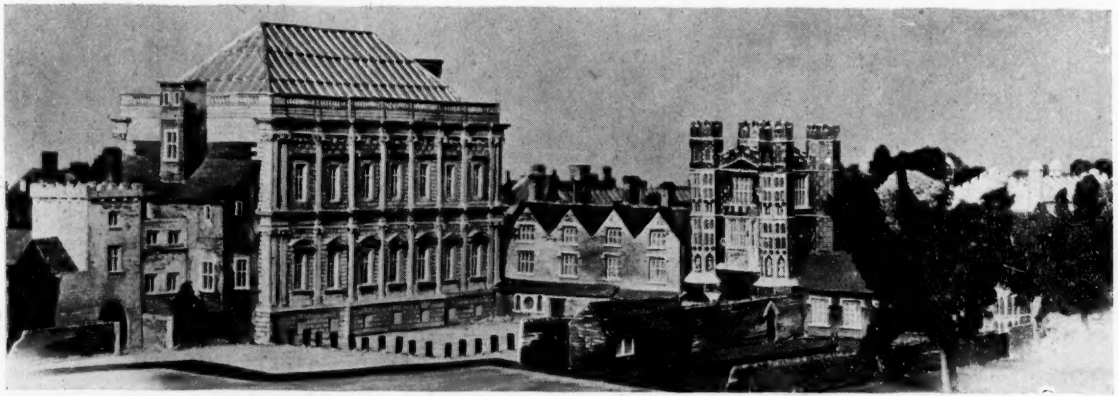
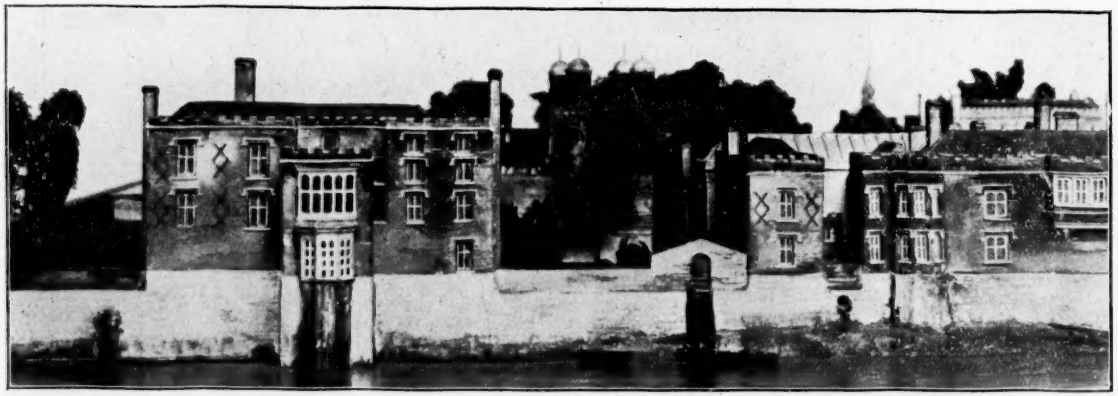


WHITEHALL PALACE, as it appeared in the reign of Charles I, 1648.



RIVER FRONT, with turrets and King Street Gate in the background.

For description of above see p. 1280.

From a Model by John B. Thorp.

ROYAL UNITED SERVICE INSTITUTION.

OCTOBER, 1913.

SECRETARY'S NOTES.

I.—OFFICERS JOINED.

The following officers joined the Institution during the month of September:—

Captain M. R. Carr, The Worcestershire Regiment.
Lieutenant N. N. Maas, R.G.A. (T.F.).
Lieutenant W. H. C. Trousdell, S. Nigeria Volunteers.
Lieutenant A. V. Pope, 14th Hussars.
Captain J. G. Ramsay, Cameron Highlanders.
Second-Lieutenant A. H. M. Ramsay, Coldstream Guards

II.—GOLD MEDAL ESSAY.

Officers competing for the Military Essay of 1913 are reminded that these Essays must be received by the Secretary on or before November 15th. Their receipt will be acknowledged in these notes.

III.—REGIMENTAL COLOURS.

The Secretary is prepared to arrange at the Institution for the repairs to Regimental Colours and Cavalry Standards, in service or otherwise, and in future there will be no more delay than necessary in executing the work, the staff having been augmented. Enquiries having been made as to the cost of such repairs, the Secretary begs to state that the average cost is about £4 a colour, of which the Institution only receives 10s., to cover the cost of materials. carriage, etc.

The Colours of the following regiments have been restored by the Institution during the present year, viz.:—

The First Garrison Battalion.
Standard of the 1st Life Guards.
The Isle of Man Fencibles.
2nd Rajput Light Infantry (1803).

1st Battalion 8th Gurkhas.
15th Sikhs (two pairs).
5th Battalion Royal Scots of Canada.
87th Royal Irish Fusiliers (Viscount Gough).

81st Regiment, Peninsula Colours (Lincoln Cathedral).
81st Regiment, Crimean Colours (Lincoln Cathedral).

2nd Battalion Gloucestershire Regiment.
2nd Battalion The Queen's Regiment.
87th Royal Irish Fusiliers.
62nd Punjabis.

2nd Battalion King's Yorkshire Light Infantry (York Minster).

7th Royal Fusiliers. (Royal Garrison Church, Portsmouth).
22nd Cheshire Regiment ,, ,, ,, ,,
67th Hampshire Regiment ,, ,, ,, ,,
Scinde Camel Corps ,, ,, ,, ,,

102nd Regiment (R.U.S.I. Museum).

Huddersfield Volunteers (1806).
44th (West Essex) Regiment.
Chinese Flag (Taku).
French Royal Colour (Taken at Quebec).

IV.—ADDITIONS TO THE MUSEUM.

(6601). Water-colour sketch of an oil painting by W. D. Stewart of an officer of the Cameron Highlanders, in levée dress. —Given by W. D. Stewart, Esq (the artist).

(6602). Model of Whitehall Palace as it existed in the reign of Charles I., 1648, by John B. Thorp, Esq.—Given by Lieut.-Colonel A. Leetham, the Curator.

(3395). *a* The gold medal (general officer's) of the Peninsular War for the Battle of Albuhera, awarded to Major-General Sir W. Parker Carrol, K.C.H., C.B., who served with great distinction in Holland, Buenos Ayres, and throughout the Peninsular War.

b Bronze medal struck in 1809 to commemorate the war services of Major-General Sir W. P. Carrol, K.C.H., C.B.

c A bronze box in the form of a medal; on the obverse is the head of the Duke of Wellington, on the reverse the figure of an angel recording British Valour, and containing 11 miniature coloured engravings of the following: Battle of Vimiero, Passage of the Douro, Battle of Talavera, Battle of Busaco, Battle of Albuhera, Battle of Salamanca, Battle of Vittoria, Siege of Pampeluna, Storming of St. Sebastian, Battle of Toulouse, Battle of Waterloo. Published by Edward Orme, 1815.

d Bronze medal struck to commemorate Admiral Lord Howe's victory on June 1st, 1794, off Ushant.—

Deposited by Miss Alice Carrol.

V.—THE MANUSCRIPTS: A REMARKABLE FIND.

In the Library Catalogues published in 1890 and 1908, and compiled by two different individuals, appears the entry "Wade. Extract from Marshal Wade's proceedings in the Highlands of Scotland. Folio." Colonel Sir Lonsdale Hale, with a view to the compilation of a detailed list of all the military manuscripts in the Institution, the number of which he now estimates at at least 1,000, has lately been making a somewhat close examination of them, and in doing so came across the manuscript bearing the above title. The manuscript is about 160 folio sheets; the writing is parallel to the longer side and is evidently the work of more than one hand. The first few sheets deal with six unregimented companies

of Highlanders raised for service in Scotland in 1725-29, but the whole of the rest of the sheets are a regimental record of these same six companies after their being regimented in a battalion as the "Black Watch." The record terminates at the year 1819. There is a sort of tradition in the regiment that the records covering this same period were lost in a transport off the coast of Donegal. Lieut.-Colonel Rose, commanding the 1st Battalion at Aldershot, was communicated with, and after two careful examinations, he came to the conclusion that this manuscript is the actual record supposed to have been lost, but possibly deposited elsewhere than on the transport, and finally to have come into the Institution years ago in the old building in Whitehall Yard. The manuscript was carefully examined by the Library Committee at their meeting on the 3rd inst., and they concurred in the opinion of Colonel Rose as to the identity of the manuscript, endorsing his request that it might be passed on to the regiment. The Council subsequently willingly assented, and the manuscript is now in the possession of its rightful owners, the "Black Watch."

VI.—MODEL OF OLD WHITEHALL PALACE.

The Council desire to call the attention of the members of the Institution to the valuable gift recently presented to the Museum by the Secretary (Lieut.-Colonel A. Leetham), in his capacity as its Curator, which was originally designed by him and constructed under his personal supervision. The model is on a scale of 1/200, and shows the buildings from Scotland Palace on the north to the Bowling Green and King Street on the south, and from the Thames on the east to St. James's Park on the west. The present Museum, then the Banqueting Hall, with the scaffold on which King Charles I. was executed, is the largest and most prominent building on the model, but we also find among the many interesting details, Cromwell's House, the huge Cockpit, the Bowling Green, the Fives Court, the Stairs giving access to the river, and buildings of all sorts of styles. The model is under a glass case and is in the north-west corner of the Museum.

The descriptive card indicates very clearly by numbers the objects and places represented. L.A.H.

VII.—IMPORTANT.

Colonel Sir Lonsdale Hale will be obliged by any relative of the late Major J. R. Jackson, retired R.M.L.I., who died at Stonehouse in 1857, communicating with the Librarian, R.U.S. Institution, Whitehall, London.

PRINCIPAL ADDITIONS TO LIBRARY.

September, 1913.

The South Pole—An Account of the Norwegian Antarctic Expedition in the "Fram," 1910—1912. By Roald Amundsen. Translated from the Norwegian by A. C. Chater. 2 vols. 8vo. 42s. Illustrated. (John Murray). London, 1912.

Memoirs of Miles Byrne. Edited by his widow. New edition, with an introduction by Stephen Gwynn. 2 vols. 8vo. 5s. 6d. (Maunsel & Co., Ltd.). Dublin, 1907.

The War Drama of the Eagles. By Edward Fraser. 8vo. 12s. Illustrated. (Presented by the Author) (John Murray). London, 1912.

The Political Development of Japan, 1867—1909. By G. E. Uyehara. 8vo. 8s. 6d. (Constable & Co., Ltd.). London, 1910.

Dressage de l'Infanterie en vue du Combat Offensif. By Colonel de Grandmaison. 8vo. 2s. 1d. (Berger-Levrault). Paris, 1912.

Truths about India—Being a reprint of Leaflets issued by the East India Association from 1909 to 1913. 8vo. 1s. (Presented by the Hon. Secretary, East India Association). London, 1913.

Indexes of the Great White Book and of the Black Book of the Cinque Ports. Sm. 4to. (Presented by Capt. R. Hudleston, R.A.). (Elliot Stock). London, 1905.

WHITEHALL AS IT APPEARED IN THE REIGN OF KING CHARLES I.

By John B. Thorp.

LIEUT.-COLONEL Leetham, the Curator of the Royal United Service Museum, commissioned Mr. John B. Thorp a few months ago to reconstruct, in model form, the Palace of Whitehall, as it appeared at the time of the execution of the ill-fated monarch. The model, which is now finished, has been presented to the Museum by Colonel Leetham. It has been made to a scale of 1/200 full size, and extends from Scotland Palace on the north, to the Bowling Green and King Street on the south, from the Thames on the east, to St. James's Park on the west, and covers a space of about 25 square feet.

The views given show both north and south sides of the model, and the classic building in the centre of the upper picture is the only portion of the Palace that is standing at the present day. It was on a scaffold in front of this building that the King ended his eventful life. It was then known as the Banqueting Hall, and was the commencement of what would have been one of the finest buildings in the world, had Inigo Jones, who was the architect, been able to carry out his ideas. To the left of the Banqueting Hall is the entrance to Scotland Palace, and on the right is seen Holbein Gate, which was erected by Henry VIII., from designs by Holbein the Painter; opposite to the Hall was the Tilt Yard.

Lovers of old London should be greatly interested in the model, as it shows what Whitehall was like at the early part of the seventeenth century. The long stone gallery facing the Privy Garden, the Cock Pit, Cromwell's House adjoining the Great Hall, in which some of Shakespeare's plays were read, are all shown, while the river front with its cluster of Tudor buildings and the Privy stairs have been carefully worked out, and is shown in the lower of the two photographs.

Mr. Thorp, whose well-known models of old London are now permanently exhibited at the London Museum, has made a special study of the topographical history of the City, and he is now engaged on constructing a large model of the Tower of London, in the year 1600, which will shortly be seen at one of our well-known London museums.

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[Authors alone are responsible for the contents of their respective Papers.]

COAST FORTRESSES DURING THE NAPOLEONIC WAR, 1803-5.

By COLONEL W. R. JAMES, Royal Artillery.

I. INTRODUCTORY.

ALTHOUGH for many years the study of military history has been recognized as an essential part of the professional education of all officers, few attempts seem as yet to have been made to extract from the history of our wars any lessons specially applicable to the attack or defence of coast fortresses.

It is useless to expect the average man, whose professional horizon is bounded by the limits of a coast fortress, to evince much enthusiasm for a subject that presents to him only an abstract interest. If any real benefit is to ensue from the studies of military history generally, the personal note must be struck, and this can only be accomplished by endeavouring to trace any effects that the strategy of the belligerents, and the consequent dispositions of their main forces both naval and military, may have had on their various fortified ports wherever situated. Far from narrowing the student's view, the attempt will entail a close examination of the reasons which influenced the strategists, and will impress the resulting operations more clearly on his mind.

Such an investigation is, however, anything but an easy matter, as, except in a few celebrated cases, such as Sebastopol and Port Arthur, historians have generally dismissed operations against fortified ports in a few words, so that a general impression has arisen that such attacks have had little connection with the main issue, and are contrary to the principles of scientific warfare. On the other hand, to limit one's studies to operations against defended ports would be of small value. The mere

knowledge that a particular coast fortress has been attacked by a certain force will afford little guide as to what may be expected in the future, unless a careful study is made of the whole strategical situation which gave rise to that attack; this, in turn, necessitates a close study of the policy of the belligerents, together with the distribution and strength of their armed forces in all parts of the world.

At first sight it will appear that I have chosen a singularly barren period for my purpose, as actual operations against coast fortresses during the period 1803-05 were by no means so numerous as during that preceding the Peace of Amiens. My reasons for doing so are as follows:—

First—The study of a war, in which a maritime Power with a small Army is opposed to a military Power with a weaker Navy, seems of peculiar interest at the present time; especially useful is it to investigate how far an imminent invasion can neutralize the advantages of a superior Navy, and thus limit the trans-oceanic operations of the maritime Power.

Secondly—It is equally instructive to note the various difficulties that arise, when a nation, dependent on a non-homogeneous Army, the bulk of which is only partly trained, and raised solely for home defence, is confronted with the necessity of adopting offensive measures, either alone or with the aid of potential allies, to whom she can offer no adequate contingent to co-operate with their land forces.

Finally, when as in this case the operations of one belligerent are directed by a single brain, the chances of drawing wrong inferences, in consequence of misunderstandings having arisen between the two services, are minimized.

Those much disputed points, the permanence and soundness of Buonaparte's naval policy, on the answers to which the value of the deductions depend, must be discussed later.

Before commencing to sketch the leading features of the campaign, it may be as well to explain the method I have adopted. If a simple narrative, unaccompanied by comment, is resorted to, by the time we arrive at the deductions, the memory of the facts themselves will have become blurred. Again, the effect on coast fortresses of the general strategy adopted must be dealt with separately from actual tactical operations, if we wish to bring out the true significance of this period.

There was a marked change in British strategy on the succession of Pitt to power in 1804. The Addington Ministry was contented with a purely defensive policy, except in the West Indies, at the commencement of the war; but under Pitt, the Government, recognizing the inadequacy of such methods, adopted an offensive policy, and made vigorous efforts to carry the war into the enemy's territory. For these reasons, after briefly indicating the general situation, and giving a short description of the action taken, I have tabulated the deductions

which can be drawn separately for each period, and have then given in such detail as I have been able to collect, those tactical operations against coast fortresses which appear capable of teaching useful lessons.

II. THE ADDINGTON MINISTRY, 1803—04.

(a) Strategical.

It is necessary to take a glance at the political situation immediately prior to the declaration of war. The friction between Buonaparte and the British Government, which led to the renewal of hostilities after the Peace of Amiens, was due primarily to the following causes:—

French annexations on the Continent in violation of the Treaty of Luneville, especially the continued occupation of Holland, caused the greatest anxiety in England. Buonaparte himself was enraged by the retention of Malta and Egypt by the British. Malta, which, by the Treaty of Amiens, was to be handed over to the Order of St. John, under a guarantee of independence by the great Powers, was regarded by the British Ministry as their most effective lever to compel the French to observe their side of the bargain. "Moreover, commercial relations between the two countries were strained; for Buonaparte, less perhaps from unfriendliness than from extreme ignorance of everything pertaining to trade, had determined to shut out British goods from all markets controlled by France."[1]

Passions on either side were inflamed by political speeches and by the Press. "On January 30th, 1803, was published in the *Moniteur* Colonel Sebastiani's famous report of his mission to the Levant, in which he stated 6,000 French troops would now suffice to conquer Egypt."[2] Buonaparte's message to the Legislature on February 20th, 1803, is deeply interesting; not only was it an incentive to war, but also it shows how much foreign statesmen may build on party differences, and reckon on the inability of Great Britain to sustain a war without allies. Fortescue and Mahan both quote it nearly in the same words:—

"Two parties there strive for power. One has made peace, and wishes to keep it; the other has sworn implacable hatred to France. . . . Whatever the success of intrigue in London, it will not drag other nations into new leagues, and this Government says with just pride, 'England alone cannot to-day contend against France.'"[3]

On May 16th, 1803, England declared war. This also is instructive. Fears for the balance of power in Europe, and

[1] Fortescue, A History of the British Army. Vol. V., p. 171.

[2] Mahan, Influence of Sea Power on the French Revolution. Vol. II., pp. 93 and 96.

[3] A History of the British Army. Vol. V., p. 174. Influence of Sea Power on the French Revolution, p. 96.

threatened commerce, coupled with apprehension of a formidable land power, forced Great Britain 110 years ago to throw down the gauntlet herself, rather than give her adversary the time he needed to perfect his designs. Equally to the point is the unanimity of the political parties when confronted with an emergency, even when a Ministry in whom none had confidence was in power. Hardly less so is the fact that as soon as politicians had grown accustomed to a state of war, their particular hobbies, or private jealousies, resumed the first place in their mental horizon, frequently to the detriment of the national welfare. Nor is Pitt's forecast of the two methods by which France might seek to subdue Great Britain without value at the present time: "If they indulge themselves in any expectation of success in the present contest, it is chiefly on the supposition (1) that they can either break the spirit and shake the determination of the country by harassing us with perpetual apprehension of descent on our coasts; or (2) that they can impair our resources and undermine our credit by the effects of an expensive and protracted contest."[1]

We must now glance at the positions and strength of the opposing forces. According to James's Naval History,[2] at the commencement of the year 1803 the British effective naval strength stood as follows:—

	In Commission.	In Ordinary.	Building or ordered to be built.
Ships of the Line	32	79	22
Fourth rates	7	4	4
Fifth rates	66	36	11
Sixth rates	11	11	6
Sloops, etc.	94	48	8

He adds[3]:—

"During a period of ten years, eight of them in war, the British Navy had slightly decreased in ships of the line. If statesmen and historians have asserted otherwise, it has been because they drew their comparisons between the wrong totals. An increase of 11 certainly appears among the permanent Harbour-Service ships, but it is the sea-service cruisers[4] which constitute the effective strength of a Navy. The number of seamen and marines voted for the service of 1803 was 50,000 for the first two, 60,000 for the next four, and 100,000 for the remaining seven lunar months of it. To the 32 line-of-battle cruisers then in commission were added, before May 1st, 20 additional ones; and by the 1st of the following month, the number

1 Speech of May 23rd, 1803. Influence of Sea Power. Vol. II., p. 100.

2 Appendix; Annual Abstract, No. 11.

3 James's Naval History. Vol. III., p. 174.

4 It may be as well to explain that James applies the term "Cruiser" to the sea-going line-of-battle ship.

of ships of the line in commission was augmented to 60, besides a proportionate number of 50-gun ships, frigates, sloops and smaller vessels, all either at sea or fitting for sea. A great many vessels of every class, including a large proportion of line-of-battle ships, were repairing; and several frigates, sloops, and schooners, were ordered to be constructed with all possible despatch."

Great Britain may be said to have commenced mobilizing on March 8th, hopes of peace having been abandoned after the King's speech of that date. Mahan gives some interesting particulars of the difficulties experienced in procuring personnel in those days. Armed parties of Marines visited the ships in the Cattewater, and the gin shops at Plymouth, as well as the receiving and gin shops at the dock, and several hundreds of seamen and landsmen were picked up. "In Portsmouth the colliers were stripped so clean of men, that they could not put to sea, whilst frigates and smaller vessels swept the Channel, and other sea approaches to the kingdom, stopping all merchant ships, and taking from them a part of their crews."[1] Even trawlers and outward bound East India men suffered. Another reason which greatly delayed war preparations was the depletion of stores, and the reduction in the dockyard establishments which had taken place. St. Vincent had been engaged in a great scheme of reform, and had been unwilling to postpone the changes necessary to deal with the prevailing corruption. "A deficiency of workmen and of materials produced of course a suspension in the routine of dockyard business. New ships could not be built, nor could old ones be repaired. Many of the ships in commission, too, having been merely patched up, were scarcely in a state to keep the sea."[2]

Turning to the French Navy, James gives the following table to show the French line-of-battle force in March, 1803:—

		No.	No.
Ordered to be built from Dutch models at	Flushing and shores of the Scheldt ...	5	
	Nantes...	2	
	Bordeaux	1	
	Marseilles	1	
	Ostend	1	
		—	10
Brest	Afloat, repaired or repairing	18	
	Building and nearly ready	3	
		—	21

1 Influence of Sea Power. Vol. II., p. 102.

2 *Ibid*, p. 122.

		No.	No.
Lorient, Building ...	Nearly ready ...	3	
	Ordered	2	
		—	5
Saint Malo ...	Ordered	1	1
Rochefort, Building ...	Nearly ready... ...	3	
	Ordered	3	
		—	6
Toulon	Afloat	8	
	Building, nearly ready	2	
	Ordered	2	
		—	12
Genoa	Ordered	1	1
	At sea...	10	10
	Total		66

Of this total 47 were afloat, or soon expected to be so.

The Batavian Navy, which was at Buonaparte's disposal, was at this time in a very reduced state; only seven sail of the line and a few frigates were serviceable. The naval resources of the Genoese Republic were also at the disposal of France, and Spain was a probable ally. The French were, however, hampered in their naval preparations even more than the British. The dockyards at Brest and Toulon did not keep pace with Buonaparte's orders. The French flotilla for the embarkation of an invading Army, had deteriorated during the Peace of Amiens, and most of the vessels were unserviceable.

Regarding the strength of the opposing land forces, Fortescue[1] tells us, that the estimates passed for the British Army in December, 1802, were as follows:—United Kingdom, 66,000; India, 23,000; Colonies, 42,000; artillery, 12,000. "In addition, 8,000 volunteers, principally cavalry, had enrolled themselves for continued service in England, and nearly thrice that number in Ireland; and altogether it was reckoned that the country could count upon 200,000 men, exclusive of the troops in India." In asking for these forces, the Secretary of State estimated the French troops at over 900,000 men.

The declaration of war took Buonaparte at a disadvantage. He himself had fixed on the year 1804 for settling his dispute with Great Britain by appeal to arms. Fortescue[2] cites his instructions to Decaën on the latter's departure for India in proof of this:—

"He was to think out in every detail the best method of carrying on a war of several campaigns in India, even without command

[1] History of the British Army. Vol. V., p. 172.
[2] *Ibid*, p. 4.

of the sea; and, above all, he was to find a suitable base, with a port which could be defended against a hostile fleet. . . . The date of these secret instructions was January 15th, 1803, and in them occurs the expression: 'Unless war breaks out before the end of September, 1804,' which, elucidated by parallel passages in Napoleon's correspondence, shows that he was reckoning on that time, and no earlier, for the renewal of hostilities. . . ."

Nor is other evidence wanting. We have seen in James's abstract, that a special squadron designed after Dutch models, had been ordered for operations in the North Sea. This could not be ready and assembled before that date.

With so great a disparity of naval forces, the vulnerable points of French territority were her possessions beyond the seas.

A large French force, both naval and military, was engaged in the re-conquest of St. Domingo, and at the time that war became inevitable, was barely holding its own against the negroes. This expedition, and the West Indian possessions of France, offered an immediate objective to the enemy. On the other hand, it was impossible for Great Britain, single-handed, to assume the offensive on the Continent: she was therefore forced to abandon the initiative to Buonaparte, who "resolved to strike straight at the vital centre of the British power, by a direct invasion of the British Islands."[1]

Buonaparte, having done what he could to protect the French Colonies, by sending out reinforcements, and selling Louisiana to the United States, turned his attention to his plan of campaign. It is hard in so limited a space, to convey more than a superficial idea of so comprehensive a scheme, but the rough outline seems to have been: To concentrate an Army, numerous enough to ensure success, on the north-east coast of France and in the Netherlands, while at the same time a flotilla, sufficient to embark the whole of it, was held in readiness at the local ports. When this was effected, a series of feints were to be employed to disperse the superior naval strength of Great Britain; so that a French naval preponderance might be established in the Channel for a period long enough to allow the French Army to cross. On this latter point the greatest diversity of opinion exists amongst historians.

As reference to the original documents, so freely quoted, is impossible, it is necessary to submit the opinions of writers on both sides. Rose, who only published his essay in the present year, holds the view[2] that at first Napoleon thought it possible for the flotilla to fight its way across the Channel unaided:—

"In the autumn of 1803 Napoleon cherished the belief that his flotilla could fight its way across the Straits. Later on, after the

[1] Influence of Sea Power. Vol. II., p. 109.

[2] Rose. Pitt and Napoleon, Essays and Letters, p. 119.

abandonment of the whole enterprise, he informed Decrès that the idea had never been in his mind, and that the object in arming the flotilla heavily had been to dupe the British Ministry as he had completely succeeded in doing. Clearly this is a piece of bluff. His arrangements in the autumn of 1803 presume that the flotilla can, in case of need, force a passage alone. He himself was the dupe of this notion, which was never taken seriously by the British Admiralty or its naval officers. All the desire was that he should make such an attempt."

In the other scale can be placed the opinion of Mahan,[1] a professional sailor, who writes:—

"In 1798, when the peace of Campo Torino had left France face to face with Great Britain alone, the question of invading the latter had naturally arisen; but Bonaparte easily convinced himself, and the Directory, that the attempt was impossible with any naval force that could at that time be raised. To cross an arm of the sea nearly 40 miles wide—for such was the distance separating Boulogne and its sister ports from the intended place of landing between Dover and Hastings—in the face of a foe, whose control of the sea was for the most part undisputed, was an undertaking so bold that men still doubt if Napoleon meant it; but assuredly he did. For success he looked to the perfect organization and drill of the Army and flotilla, which by practice in embarking and moving, should be able to seize, without an hour's delay, the favourable moment he hoped to provide by the great naval combination concealed in his brain. Napoleon also understood that his gunboats could not at sea contend against heavy ships with any founded hope of success."

Quoting Marmont as his authority for the statement, Mahan finally sums up the matter in the following phrase:—"He could not without belying every conviction he ever held." Mahan,[2] with an insight rendered acute by his professional training, discovers merely an attempt to disguise the real design in those manœuvres which Rose accepts as the actual plan of campaign:—

"As the occupation of Taranto and the movements in Italy were designed to divert Nelson's attention to the Levant, so the ostentatious preparation of the great flotilla to pass unsupported was meant to conceal the real purpose of supporting it. To concentrate the apprehensions of the British authorities upon the flotilla, to draw their eyes away from the naval ports in which lay the French squadrons, and then to unite the latter in the Channel, controlling it for a measurable time by a great fleet, was the grand combination by which Bonaparte hoped to ensure the triumphant crossing of the Army and the conquest of England. He kept it, however, in his own breast; a profound secret only gradually revealed to the very few men entrusted with its execution."

James, upon whom I think Mahan drew largely, also held the same opinion very decidedly.[3] The fact that Buonaparte

1 Influence of Sea Power. Vol. II., pp. 108, 112, 115, and 120.
2 *Ibid*, p. 112.
3 Naval History. Vol. III., pp. 316—321.

recalled his powerful battle squadron in the West Indies before the declaration of war, thereby sacrificing the remains of his unfortunate Army, shows that he was well aware that the whole of his available naval force would be required at the vital point. Again, the preparation of a special North Sea Squadron, referred to already, must also be admitted as trustworthy corroborative evidence. I think that, on the whole, the weight of evidence is greatly in favour of the naval historian; to accept the other view is to attach a label of mediocrity to the most able strategist the world has produced.

To carry out this plan Napoleon distributed his forces as follows:—At Boulogne, Etaples, and Vimereux, 130,000 troops were concentrated ready for embarkation; Hanover was occupied with a corps of 30,000 men, and the Elbe and the Weser closed to British trade; another corps was despatched to the heel of Italy, and the ports of Brindisi and Taranto seized, the object of this movement being, by threatening the Ionian Islands, Morea, and Egypt, to divert a considerable part of the British naval force to protect these threatened points. The occupation of Hanover was a stroke at British commerce; by hampering our trade, Buonaparte hoped to weaken the sinews of war, and thus wear out resistance. The creation of the necessary flotilla, and provision for its concentration, was a work of time. The port of Boulogne was greatly enlarged, as also were the smaller harbours of Vimereux, Ambleterre, and Etaples. Coast batteries were erected to guard the concentration, and field batteries were also organized to aid the passage of the boats.

Mahan's description of the operations involved in the concentration is as follows:[1]—

> "In the early months of the war great importance was attached by the British to harassing these voyages, and impeding the concentration; but the attempt was soon abandoned. The boats if endangered anchored under the nearest guns. Infantry and horse artillery, summoned by the coast telegraph, hurried to the scene, and the enemy's vessels soon found the combined resistance too strong. Ordinarily, indeed, the coast-wise movement of a division of the flotilla was a concerted operation, in which all the arms afloat and ashore assisted. In extreme cases the vessels were beached, and British seamen fought hand to hand with French soldiers for possession; rarely, however, with success. 'The cause of our flotilla not having succeeded in destroying the gun vessels of the enemy,' wrote St. Vincent, 'did not arise from their draught of water, but from the powerful batteries on the coast.' The concentration, though accomplished less swiftly than Buonaparte's eagerness demanded, was little impeded by the British."

Cornwallis blockaded Brest; Collingwood observed Rochefort; whilst Pellew watched Ferrol, and Nelson Toulon.

> "In case, however, the French at Brest got out, Cornwallis's rendezvous was off the Lizard, so as to go for Ireland, or follow the

[1] Influence of Sea Power, p. 113.

French up Channel, if they took either direction. Should the French run for the Downs, the five sail-of-the-line at Spithead would also follow them; and Lord Keith (in the Downs) would, in addition to his six, and six block-ships, have also the North Sea Fleet at his command."[1]

One hundred to one hundred and fifty frigates and smaller vessels were kept patrolling from the Channel Islands to the Texel.

In the European theatre of operations the period up to the fall of the Addington Ministry in May, 1804, can be described as one of preparation on both sides. The French energies were principally turned towards the preparation of fleet and flotilla, those of the British to extemporizing an Army for home defence. During the whole of this period Admiral Cornwallis maintained the blockade off Brest, being only once blown off his station by a gale at Christmas time; but the French fleet, then consisting of eight sail-of-the-line and as many frigates ready for sea, made no attempt to sail.

By this time eight of the French line-of-battle ships from St. Domingo were distributed between Rochefort, Ferrol, and Corunna, and new ships were being hurried on at Antwerp, Brest, Lorient, Rochefort and Toulon. By May, 1804, 19 sail-of-the-line lay ready at anchor in the roads, and Napoleon had issued most stringent orders to improve the discipline and efficiency of the fleet. If Mahan is correct in his statement[2] that "the Brest fleet, during the life of Latouche Tréville had been destined to tie Cornwallis to the French coast by the passive service of a mere demonstration," it certainly fulfilled its part. Nelson in the Mediterranean was kept busy watching the Toulon fleet, and speculating on its destination. It is noteworthy that as early as August, 1803, the French had eight sail-of-the-line in the roads, whilst Nelson had only six with him. Nelson made his headquarters in the Maddalena Islands, at the north end of Sardinia. During the whole of this period he was much hampered by the bad state of his ships, and the want of proper scouts: "I am kept in great distress for frigates and smaller vessels at this critical moment. I want ten more than I have, in order to watch that the French do not escape me."[3] The French Toulon fleet was more active than that of Brest, but, though a brush or two occurred, no action of importance ensued.

Turning to the Army.

The British Government, bent on defensive measures, gave all its attention to increasing the Militia. Their measures only succeeded in running up the bounty for this force to £20 or £30, and thus bringing the local Army into competition with the

1 Influence of Sea Power, p. 119.

2 *Ibid*, p. 131.

3 *Ibid*, Vol. II., p. 128.

Regular forces for which the bounty offered was £7 12s. 6d. In Parliament:

> "Windham attacked the whole system fiercely, pointing out that if men could earn large sums by serving for a few years at home, they could not be expected to enlist for life to serve in the Regular Army in any part of the globe. Pitt echoed Windham's strictures, and both agreed in condemning a purely defensive policy as alike ruinous and dishonourable. But Addington was popular with the country members, and the House accepted his assurance that he was only dealing with defensive measures first, in view of the vast preparations of the enemy. When the opportunity for offensive operations should arrive, he added, no doubt the country would afford means for supporting them with honour."[1]

Various grades of Volunteers were enrolled, and a Bill for creating an Army of Reserve brought in. It would take too long to enter into the details, but the effect of all the schemes is given by Fortescue[2] as follows:—"What they actually did was to augment the number of men to be raised by ballot in a single year to one hundred and ten or twenty thousand men, admitting throughout the principle of substitution, which as a natural consequence swept into the Militia and the Army of Reserve every man who might with better management have been recruited into the Army." The Billeting Act,[3] passed on August 11th, exempted "effective" Yeomen and Volunteers from the ballot, not only for the Army of Reserve, but for any other additional force that might be raised in future. The result was the enrolment of an enormous mass without any means of controlling it, and for which there were not even firearms.

Things went from bad to worse, and money was squandered in every direction. Fortescue sums up the state of affairs in the autumn of 1803 as follows[4]:—"And yet, if Napoleon had landed at the end of September or beginning of October, he would have found little to oppose him but a half-armed, undisciplined rabble, composed in many instances of fragments of corps whereof part had marched out to meet him, and the remainder, agreeable to their terms of service, had refused to move out of their military districts." It was not till March, 1804, that the Government attempted to augment the Regular Army; but the methods employed were unsound, and eventually after a violent attack by Pitt in the House on April 23rd, the Government resigned. The one bright spot in the period was the formation of the nucleus of the light brigade under Sir John Moore, who was in command at Shorncliffe.

The only actual land fighting which took place was in the West Indies. At the commencement of the war, combined

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1 Fortescue, History of the British Army. Vol V., p. 202.
2 History of the British Army. Vol. V., p. 205.
3 *Ibid*, p. 208.
4 *Ibid*, p. 216.

operations there were begun immediately, and I propose to deal with these later in some detail. It must suffice now to say that no important action could be undertaken owing to the lack of both ships and men.

During this period, commerce destruction was actively pursued on both sides. From her bases at Guadeloupe and Martinique in the West Indies, and Mauritius in the Indian Ocean, France filled the surrounding seas with a host of commerce destroyers. Naturally the country with the larger trade suffered the more, and the French mercantile marine had practically disappeared before the Peace of Amiens. And further, the French merchant seamen, whose employment was gone, furnished ample material with which to man the swarms of privateers which harassed the British shipping. On the other hand Great Britain could not spare sufficient cruisers to afford the protection required by her mercantile marine.

So far, though neither side had scored a signal success, the advantage appears to have rested with France. Napoleon had subjected his enemy's maritime force to a severe "wearing out" process. As we have seen, it was with great difficulty the blockade of Toulon was kept up. Though 87 British war vessels were launched in 1804, the total effective strength of ships-of-the-line was only increased by one. No less than 48 of the new ships were gun brigs. The expense of building these small craft was forced on the British nation in consequence of the threat of invasion. The actual British losses for the year 1804 were three ships-of-the-line and 21 under the line; most of these casualties were incurred owing to the maintenance of the blockade. On the other hand, the French squadrons were increasing in numerical strength during the whole period. It is hardly possible to conceive what the strain on the personnel of the smaller ships must have been without a very close study of the Naval Chronicle. An extraordinarily high standard was exacted by the authorities, and failure, even against long odds, rarely condoned. It is not wise to talk lightly of the dangers of invasion. A thorough knowledge of the skill and hardihood displayed, and the privations endured, by British seamen, clearly points to the fact that they realized the danger was a very real one. As regards land forces, England had little to show for a vast expenditure in money.

Let us now see what deductions can be drawn from this period. The protection afforded to distant possessions in the European theatre of operations by a superior Navy is an idea familiar to all; but, that an Army can exert a similar influence, will not be so readily accepted, yet I think it is very difficult to attribute the immunity from attack of the French bases at Guadeloupe, Martinique, and Mauritius, to any other cause. There were not sufficient troops available for such enterprises. We know that the political power of the merchants was so great, and the destruction of commerce, in consequence of the

existence of these bases, so much felt, that had it been possible their reduction would have been attempted. The reply of the Secretary of State in September, 1804, to the request of the Commander-in-Chief, Windward Islands, for reinforcements, is conclusive evidence:—"Every soldier is imperatively needed to repel a possible invasion of England by France."[1]

But I think the history of this period contains an even more significant lesson. To meet this threat of invasion, we see not only a host of cruisers, which should have been available for the protection of commerce, diverted from their legitimate duty, but also our very sea power itself impaired by want of its eyes and ears. But above all the limit of sea power was brought home to us in a most striking manner. Our fleets could deny the high seas to the enemy's squadrons, but they were powerless to prevent their steady increase behind the protecting armaments of the French naval bases. Again, the influence of the "Fleet in Being" cannot be ignored if a true conception of the strategic situation is aimed at. Had Great Britain possessed the land power to capture Brest or Toulon, and been thus enabled to ensure the impossibility of the French gaining a temporary local superiority in the Channel, she could have laughed at Napoleon's threat of invasion, have safeguarded her commerce, and left France without a foot of territory beyond the seas. Had she even been able to wrest Martinique and Guadeloupe from her foe, Napoleon's subsequent naval strategy would have been much more hazardous—if not impossible.

To sum up: *however powerful a Navy a nation may possess, she cannot deal her adversary a vital blow without an adequate land force as well.*

Operations.

We must now turn to the consideration of tactical questions. I am aware that there is an immense body of professional opinion which regards such operations as I am about to describe as contrary to the principles of scientific warfare, therefore I cannot do better than preface my short description with Mahan's opinion on the subject:—

> "To control the whole Caribbean region was, amongst those objects which lay within the scope of the British Government, the one most essential to the success of the general war. To sneer at the attempt, as showing merely a wish for sugar islands, is to ignore the importance of the West Indies to the financial stability of Great Britain, upon whose solvency depended, not only the maritime war, but the coalition whose aid was needed to repress the system of French aggression. . . . These [expeditions] not only extended the sphere of British commerce, they contributed yet more to its enlargement by the security resulting from the conversion of hostile to friendly ports, and the consequent diminution of enemy's cruisers."[2]

[1] Fortescue, History of the British Army. Vol. V., p. 192.

[2] Influence of Sea Power on the French Revolution. Vol. II., pp. 393—4.

I will also ask you to bear in mind Nelson's opinion :—"If our islands should fall, England would be so clamorous for peace, that we should humble ourselves."[1]

About the middle of June, as soon as the intelligence of the Declaration of War reached Admiral Duckworth, the Commander-in-Chief on the West Indies station, he despatched Commodore Loring with four 74's, the "Bellerophon," "Elephant," "Theseus," and "Vanguard," and two frigates, the "Æolus" and "Tartar," to blockade Cap François. The remains of the unfortunate expedition, sent out by Buonaparte in 1802 to reconquer Hayti, now only retained a few coast towns in their possession, the principal being Cap François and Mole St. Nicholas. The French were entirely dependent for their supplies on sea transport. It will be remembered that the greater part of the French battle squadron had sailed for Europe before the outbreak of war. On July 24th, the two remaining French line-of-battle ships, "Duquesne" and "Duguay-Trouin," accompanied by the "Guerrière" frigate, seizing a favourable opportunity, sailed from the harbour of Cap François, and tried to run the blockade. After a 24-hours' chase, the "Duquesne" surrendered, but the "Duguay-Trouin" and "Guerrière" arrived safely in Corunna, after successfully eluding the blockading squadron of Sir Charles Pellew off that port. On November 20th, the French garrison, closely invested by the insurgent negroes, and reduced to a state of starvation, evacuated the town by agreement with the Haytian General Dessalines, and embarked on two frigates and some smaller vessels, but, being unable to escape the blockading squadron, surrendered to the British Commander. Other detachments followed suit. The garrison of Mole St. Nicholas escaped to Cuba in the early part of December, during the absence of the British squadron, which had sailed for Jamaica with its prisoners and prizes. The only places in the islands which then remained in French possession were St. Domingo and St. Jago.

Of British troops, in April there were in the West Indies not far from 10,000 men, of all ranks and colours, fit for duty, of whom between 3,000 and 4,000 men could be spared for active operations.[2] The news of the declaration of war with orders for attacks upon Martinique, St. Lucia, and Tobago, reached Barbados, the military headquarters in the West Indies, about the middle of June. General Grinfield, who had made all arrangements in anticipation, sailed for St. Lucia with over 3,000 troops on June 20th, under convoy of two line-of-battle ships, the "Centaur" and "Courageux," and some smaller vessels, Commodore Samuel Hood being in command. The artillery with the expedition consisted of 14 field and 16 siege guns, with a personnel of 271 Royal Artillery.

1 Nelson's Despatches. Vol. VI., September 6th, 1804, quoted by Mahan.

2 Fortescue, History of the British Army. Vol. V., pp. 181—2.

General Grinfield, after consideration, had come to the conclusion that Martinique, which was well garrisoned, would require 10,000 men to master it, and that St. Lucia, strategically situated as it was with regard to Fort Royal, Martinique, the principal base of the French commerce destroyers, was the most important objective. On June 21st, the fleet anchored in Anse du Choc, the bay which lies immediately to the north of Castries. Before 5 p.m., by the able disposition of Captain Hallowell of the "Courageux," the whole of the troops were disembarked in good order.[1] At 5.30 p.m., the French outworks were driven in and the town of Castries taken. The commandant of Morne Fortuné, the principal fortress of the island, was then summoned to surrender. Brig.-General Nogués refusing to do so, the works were stormed at 4 a.m. on the 22nd, and at 4.30 a.m. were carried, with a loss to the British Army of 20 officers and men killed, and 110 wounded. Fortescue[2] remarks: "the fortifications were in too ruinous a condition to be very formidable;" he also gives the number of prisoners as 600, and the garrison left to hold the island, *viz.*, 68th Regiment (over 700 strong) and three companies of negroes (presumably of the 3rd W.I.R.).

It is instructive to compare these operations, in which an inadequate garrison, occupying neglected works, succumbed at once to a night attack, with those under Sir Ralph Abercromby in 1796. In the earlier attack a large Army was employed, and there was much very severe fighting extending from April 26th to May 26th. The principal town, Castries, lies on the western or leeward side of the island. A few miles to the south of it is situated the chief harbour, the Grand Cul de Sac; powerful batteries commanded its entrance, the principal ones being named Sèche and Ciceron. From the account in Sir John Moore's diary, one gathers that these batteries were open ones, but commanded from the central fortress—the key to the whole place—Morne Fortuné. The bay, where the later expedition landed, was in 1796 commanded by two batteries, Trouillac and Brellotte. A detachment of 1,900 men was landed at the extreme north of the island, and after slight skirmishing advanced southward at 3 a.m., and arrived at the heights of Choc to find these batteries abandoned, leaving the bay free for the disembarkation of the main body, which was speedily effected.

A night attack was at once ordered on the Morne Chabot. Two columns, each about 1,000 strong, under Brig.-Generals Moore and Hope were detailed. These officers were dependent upon guides, being entirely unacquainted with the ground. The paths were narrow and rough, the country wooded and very intricate; no communication was possible between the columns. Although it was a bright moonlight night, the march

[1] James, Naval History. Vol. III., p. 207.
[2] History of the British Army. Vol. V., p. 183.

was very slow, owing to the difficulty of keeping long columns in single file closed up. The intention was to attack at the first signs of dawn. Moore's column, however, came suddenly in contact with a picquet as it was emerging from a wood, so he attacked at once. His reasons, given in his diary, are in themselves a lesson in tactics: "I thought I could not wait in file in a wood in a country of which I was ignorant, and with which the enemy were acquainted. I had, therefore, no alternative but to push on and attack." The picquet was driven in; after experiencing considerable difficulty in eliciting from his guide the lie of the ground, the enemy was drawn up crowning the hill.

I think Moore's own words must be quoted[1] here; they describe so graphically the difficulties of both sides of a night attack in such country:—

> "They fired upon us with great effect, and notwithstanding every effort I could not prevent our men from firing, or induce them to advance with the bayonet. They received repeated discharges within 20 or 30 yards. Those in our rear began also to fire, so that no situation could be more distressing. The two companies (Grenadiers and light companies of 53rd) were much broken. The obscurity of the night, and perhaps the fears of the enemy, prevented them from seeing our real situation. Our men were always rather gaining ground, though not in the order nor with the rapidity necessary. . . . We at last reached the summit and put to the bayonet such as had not time to escape. Our loss was 70 or 80 officers and men killed and wounded."

Hope marched to the sound of the firing, but on its cessation, was in doubt as to what to do, till Moore ordered a drummer to sound the Grenadiers' march. The two columns joined at daybreak. Moore's orders were to place 500 men on Morne Chabot and extend to the left, but seeing the peak of Morne de Chasseur, he instantly guessed its importance, and, leaving a strong detachment on Morne Chabot, pushed on and seized it. He found it even more important than he imagined; not only was he able to establish communication with General Morshead's detachment which had landed at Anse la Raye, but he also found that it was connected by a ridge with Morne Fortuné itself. This ridge looked down on the valley of Grand Cul de Sac on one side, and that of Castries on the other. Here he established his corps, and threw forward his outposts to within 1,200 yards of Morne Fortuné, as he himself recognized at once it was the one place from which Morne Fortuné could be attacked. This advantageous position was at once linked up with headquarters by establishing strong posts, and a road to bring up siege guns was commenced. General Morshead arrived with his column at Morne Petit, overlooking the Grand Cul de Sac from the south.

The next event was a night attack on May 7th-8th on the batteries commanding the Grand Cul de Sac. From Moore's

[1] Diary of Sir J. Moore. Vol. I., p. 202—203.

post a column under Hope was directed against the Sèche, and two from Morshead's against the Ciceron. Hope's men actually took the battery, but were driven out by the fire from Morne Fortuné; one of the columns from Morne Petit never crossed the river, so that the other column, unsupported, had to retire, and the whole force retreated up the valley of Cul de Sac with the loss of 100 killed and wounded. This repulse was a serious check, as it prevented the complete investment of Morne Fortuné which had been contemplated.

By the 16th, the investment on the land side was completed, and the siege batteries opened fire on the Citadel, but a good deal of smart fighting took place before the enemy were driven from their advanced positions. An incident, showing the necessity of inter-communication, occurred here. A party commanded by an over-zealous officer, pushed closer to the enemy without orders, got between another British picquet and the enemy, who promptly fired on the moving troops; only the steadiness of the picquet prevented the first party being caught between two fires. An attack on the Vigie redoubt was repulsed with 170 casualties. On May 25th, an important outwork of Morne Fortuné was captured after much hard fighting—the 27th Regiment losing 120 officers and men in repelling two vigorous counter-attacks. The next day the garrison capitulated. They then mustered 2,000, chiefly blacks and men of colour.

One cannot help being struck by the fact that, in St. Lucia, as in many other fortified ports, so much had been done to defend the place from the sea, whilst the land side had been neglected. If it was worth the expense of erecting and arming batteries to deny the anchorage of Anse du Choc to an enemy's fleet, surely the small extra cost of a redoubt on the high land in rear need not have been grudged. It would have greatly delayed the attack to have been obliged to disembark all their siege ordnance and supplies at Anse du Cap; and to delay the attack is the great duty of the defence. It is only in very exceptional cases the defence can repulse an attack without aid. On the other hand, if the batteries were beyond the area of the fortress, it seems a waste of money to have constructed them at all.

Sir John Moore, whose experience in this class of warfare was unique, when called on to advise on the defences of St. Fiorenzo said[1], in opposing the indiscriminate erection of such batteries: "You may in this manner go from bay to bay till you get to Calvi; for you will no sooner have erected batteries in one, than you will find another two miles further on; but with the force we have, considerable detachments cannot be risked at such a distance from the main body." The protection afforded to batteries by a work on high ground commanding them, is exemplified by the failure of the attacks on the Sèche

[1] Diary of Sir J. Moore. Vol. I., p. 148.

and Ciceron batteries. The danger of siting a work within range of higher ground, and also the necessity of defilading the interior from view, may be gathered from Sir John Moore's remarks on Morne Fortuné:—"The hill upon which my right is placed is higher than Morne Fortuné, the buildings and guns of which are much exposed because the ground continues to rise within their works. The distance is 1,800 yards. The Morne commands all the other ground round it except this."

A point of great interest is the constant recourse to night operations. The way in which considerable bodies of troops were led over difficult country should warn us not to attach too much importance to the deterrent effect of any terrain, however rough, especially as the general average of efficiency of the personnel employed in 1796 was not high. The moon rose between 11 and 12 on April 26th, so there was no moonlight to help the attack on May 7th. Another warning is conveyed by the narrative: "The marksmanship of the enemy was superior to that of the British."

Tobago capitulated without fighting. Fortescue adds:—

> "Berthier [the Commandant] had indeed no choice in the matter, for his garrison numbered but 200 men, half of them sailors, while the whole of the population was hostile to him. He revealed, however, to Grinfield that his orders had been to fortify Man-of-War Bay thoroughly and to make the island a French naval depôt, with a garrison of 1,200 men. This plan, if fulfilled, would have placed Trinidad and the whole of the southern islands at his mercy. Eight companies of the Royal Scots, and a company of negroes were left at Tobago; and therewith Grinfield prudently returned to Barbados. The conquest of the island might be easy, but the supplying of garrisons in such a climate was a costly process, and might become still more costly if the French with a powerful force at Martinique should attempt reprisals. There was, of course, a British squadron at Windward and Commodore Hood was an active and zealous officer, but his ships were not too many, and Antigua and Dominica lay invitingly close to Guadeloupe and Martinique."

I do not propose to touch on the expedition to Demerara in the same year, General Grinfield having ascertained with tolerable certainty that the colony would make no resistance; in fact, half the garrison, which was larger than the Expeditionary Force, enlisted in the British service.

MARTINIQUE.—The successful raid by the crew of the "Blenheim" on Marin Harbour, Martinique, on November 16th, 1803, ought to serve as a warning to the garrisons of coast batteries. The attack was planned in order to capture the "Harmonie," "a vessel, the most destructive to commerce of any in the Caribbean Sea." Marin was strongly defended by batteries at each side of the entrance, as well as by one above the town. Captain Grave, on reconnoitring, decided that the battery on Marin Point, mounting nine guns, including six

24-pounders, would interfere with his bringing the captured vessel out, so, at the same time that he despatched a party to cut out the "Harmonie," he sent 60 marines to surprise and capture the battery; this was most successfully done, the guns spiked, carriages destroyed, and magazines blown up without the loss of a single man. It is unfortunate so much is left to conjecture by James, but I think we may conclude this was an open battery, as the attack was not a complete surprise, the sentry having time to fire two shots. Nothing is said about the numbers of the enemy, except that 15 prisoners were taken; it is not stated how far off the landing was effected, but it seems probable the gunners were looking seaward, hearing the attack on the privateer going on, and that the marines stole up under cover of the sugar canes, which grew right down to the battery.

CURAÇOA.—There was another attack on a fortified port during this period that is worthy of consideration, though it is contemptuously dismissed by Fortescue[1] with a few lines which, judging by James's account, have not even the merit of accuracy. Curaçoa, one of the Dutch Leeward Islands, had voluntarily surrendered to the British in 1800, to escape the tyranny of the "Republican ruffians," and had been restored to the Dutch on the Peace of Amiens. Early in 1804 Admiral Duckworth sent an expedition against it consisting of two 74's, two frigates, and a schooner. A third 74 was told off, but did not arrive. The Dutch on this occasion had no idea of surrendering. The town and harbour of St. Ann were well fortified, the fort mounting nearly 100 guns. I regret I can procure no map, but judging from the description, coupled with one's knowledge of Dutch works of the same period in other parts of the world, I think we may picture the two principal works, Fort République and Fort Amsterdam, lying one on either side of the narrow entrance of the harbour, as closed works, with strong land faces, impregnable to assault.

On January 31st, 600 seamen and marines were landed in a small cove some few miles off; the fire of the line-of-battle ships keeping down that of Fort Piscadero (ten 12-pounders), which protected the landing place. As the fort was stormed and carried without loss, we may presume this was an open, low-sited battery. The heights in rear were carried without much difficulty, and the force advanced four miles to a position overlooking the town. During the next two days batteries, mounting two 18-pounder guns and six 18-pounder carronades, besides smaller pieces, were erected to engage the Dutch works. The Dutch garrison was aided by the crews of French privateers. On the 4th and 5th the attack successfully repulsed sorties; but their batteries were unable to make any impression on the permanent works, so their fire was directed on the town and shipping, which included a Dutch frigate. The garrison saved

[1] History of the British Army. Vol. V., p. 191.

the latter from injury by placing two merchantmen alongside her. The attack lost heavily by sickness, and from the artillery fire of the forts. On the 23rd the Dutch were reinforced, and on the 25th the British re-embarked, abandoning their guns after rendering them unserviceable.

James's account[1] throws a curious light on the difficulty of manning our ships:—"Nearly one-half, or 30 out of 67, of the "Hercules's" marines were Poles, part of the prisoners taken at St. Domingo, and who, most inconsiderately, had been allowed to enter. On the 24th these 'volunteers' very naturally evinced so clear an intention of going over to the enemy, that they were obliged to be sent on board their ships with all haste."

I think this expedition, imperfect as is the account I have been able to collect, is full of instruction. In spite of Fortescue's sneers at the expedition as simply a quest for prize money, there is evidence that this strongly fortified base was largely frequented by commerce destroyers, and as such was a danger to the West Indian trade, and therefore a place to be destroyed. The initial mistake seems to have been that the Admiral, misled by the capitulation in 1800, caused the place to be attacked without any reconnaissance. The skill and daring displayed by the sailors, in first landing heavy guns from their ships while under weigh—for there was no anchorage for large vessels—and then carrying them over hilly and difficult country to their batteries; and the extraordinary tenacity with which they stuck to their inadequate siege works under a heavy and effective fire, in spite of sickness, exposure, and want of proper supplies, not only excites the deepest admiration, but makes one doubt Fortescue's comment that "a few gunners and mortars would have forced the Dutch to surrender in two or three days." Nor was science lacking, for care was taken to protect the lines of communication, and the final retreat was skilfully carried out without loss. The casualties amounted to 10 per cent. killed and wounded, and 10 per cent. disabled by sickness. The Dutch force is given by James as 250 Regulars, a body of local militia, and the crews of the vessels in the harbour (a frigate and two French privateers).

I hardly think it would be possible to find a better example of the value of proper fortifications; considering that in three instances in the open the naval force proved decisively their superiority, one can hardly doubt that, had the Dutch forts depended on barbed wire as an obstacle, they would have fallen within 24 hours of the first landing. On the other hand, we see the danger of attacking a place, where a *coup de main* is out of the question, with forces inadequate for a complete investment. As the Dutch were enabled to introduce reinforcements into the town, there could have been no difficulty about supplies. It was the story of Delhi or Sebastopol on a small scale; the hardship and privation fell on the attacking force. A point of

[1] James's Naval History. Vol. III., p. 287.

interest to garrison gunners may be noted. The British ships, though carefully avoiding the fire of the main defences, closed at once to short range with Fort Piscadero, and overwhelmed it with the volume of their fire. The explanation is that the 12-pounder gun could not penetrate the side of a line-of-battle ship. The lesson to be learnt from this seems to be that, if the armament of a fortress is unable to deal a vital blow, it loses its chief value, that of a deterrent. The question is one of paramount importance in these days, when the protection given, not only to battleships, but to cruisers, is increasing far more rapidly than the offensive powers of the ordnance still deemed sufficient for our fortified ports.

II.

THE PITT MINISTRY, from 1804.

(a) Strategical.

I cannot sum up the situation at the time Pitt returned to power more concisely than by quoting the following extract from Rose's book[1]:—

> "Before the outbreak of war in May, 1803, Napoleon had summed up the situation in the words, 'Forty-five millions of people must prevail over sixteen millions.' And now after a year of hostilities his position was far stronger. In Hanover the French troops were profitably installed on the Elector's domains. Soult's corps occupied the Neapolitan realm, thus threatening Malta, the Ionian Isles, the Morea, and Egypt. The recent restitution of several colonial conquests by England not only damaged her trade, but enabled her enemy to stir up trouble in India. There, thanks to Wellesley's dramatic victory at Assaye, the Union Jack waved in triumph; but at other points Napoleon might hope to gain the long contested race for Empire."

There seems to be no doubt that Pitt from the first fully realized that offensive measures were absolutely necessary. These, however, were only possible with the aid of allies. In his efforts to obtain assistance, he was seriously handicapped by the state of the King's health, and by his lack of troops to co-operate in any joint enterprise; so again the Government's first efforts had to be turned to the task of augmenting the Regular Army. Again the plans for raising recruits were made the subject of fierce wrangling in Parliament. Fifteen months after the declaration of war our country had not yet settled on the methods by which the necessary forces to carry it on were to be obtained. Even the Army of Reserve and the supplementary Militia were 20,000 short of their not extravagant complement of 79,000. It is interesting to note that as early as 1804 one eminent soldier—Robert Craufurd—fully realized the necessity for compulsory training. Pitt's proposals were eventually carried by a narrow majority of 22.

[1] William Pitt and the Great War, p. 505.

How unsatisfactory expedients, forced on a nation at such a crisis, are, may be gathered by the following extract from Fortescue[1] in his comments on the debate in the House of Commons on March 6th, 1805, when Sheridan moved the repeal of the Act:—

> "The situation was serious, and Pitt knew it. The casualties in the Regular Army for the first nine months of 1804 exceeded the recruits gained during the whole year by over 3,000; and Lord Grenville openly asserted in the House of Lords that the numbers of the Regular infantry were actually smaller on January 1st, 1805, than on January 1st, 1904. If the war were to be conducted on such lines, the ruin of the nation could only be a matter of time."

Various defensive works were constructed during the period, notably the Hythe Military Canal, and the famous Martello Towers; Volunteers and Yeomanry were organized into brigades, and transport provided by registering private vehicles. A singular thing about this period is the fact that there seems to have been no official military adviser to the Government, Pitt consulting anyone he chose. The name of Dumouriez, a French Royalist General, appears much in evidence in documents relating to these subjects. Fortescue also tells us[2] that "it seems probable that Pitt leaned greatly on Sir John Moore."

Pitt's negotiations with Russia and Austria dragged on through 1804. His difficulties, in playing his diplomatic game against Napoleon in the Foreign Courts, cannot be better explained in a few words than by this short extract[3] from Rose:—

> "While the French Emperor played his game with the advantages conferred by a daring initiative, superior force, and unquestioned authority at home, Pitt had to employ all possible means to conciliate allies abroad and half-hearted friends at Westminster. His position was far from secure. True, the King had now recovered almost his usual health; but in Parliament, the Ministry with difficulty repelled the bitter attacks of Fox, Sheridan, Grenville, and Windham."

Napoleon, in fact, was the first to strengthen his position by an alliance; for Spain declared war against England on December 12th, 1804. It is true the French had, prior to that date, made great use of Spanish ports to refit their ships, and had used them as bases for commerce destroyers; but now the whole strength of the Spanish Navy was at their disposal.

Russia's great object was to gain the co-operation of British troops in South Italy, and compel us to surrender Malta; to the latter Pitt would not accede. His reply to the Russian Ambassador in May, when told that unless he gave way about Malta there was an end to all hope of alliance, is worth recording:—

> "It will not save Europe. The Mediterranean, the Levant, and Egypt will be in the power of France the moment a British squadron

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1 History of the British Army. Vol. V., p. 240.

2 *Ibid*, Vol. V., p. 232.

3 William Pitt and the Great War, p. 517.

ceases to have as a base a good port protected by formidable fortifications. . . . So whatever pain it causes us (and it is indeed great) we must give up the hope of seeing the alliance ratified, since its express condition is the renunciation of Malta. We will continue the war alone. It will be maritime."

Napoleon's own act finally gave Pitt the allies he required. His coronation as King of Italy on May 26th, and annexation of Genoa on June 4th, caused Russia to re-open negotiations, and eventually to conclude an alliance on July 28th, on the following terms[1]:—"The Czar promised to set in motion half a million of men (half of them being Austrians and only 115,000 Russians), so as to drive the French from Italy, Switzerland, Germany, and the Low Countries, England subsidizing the Allied forces at the rate of £1,250,000 a year for every 100,000 men actually employed."

On August 9th, Austria allied herself to Russia, and by the end of August the French Army of invasion was marching to the Rhine. It was British gold, and not British troops, that enabled Pitt to direct the blow which caused the withdrawal of the army of invasion from Boulogne.

A very slight sketch of the naval campaign must suffice. Our object is to study naval history only so far as to trace the effect of the strategic employment of fleets on coast fortresses. In August, 1804, Napoleon ordered the Toulon fleet to proceed to Boulogne, picking up the Rochefort squadron on the way, and keeping far out to sea to escape detection, but on August 20th Latouche Tréville, who was in command, died. This was a serious loss to Napoleon, for he was his best Admiral. This necessitated a change of plan, and he determined to employ the Brest fleet for his real attack, and use the Toulon and Rochefort squadrons to make a diversion in the West Indies. But before his plans could be put in operation, the Spanish declaration of war occurred, and was the means of augmenting Napoleon's naval strength by 25 ships-of-the-line and 11 frigates. These were to be ready for sea by March 21st, 1805.

As the whole value of the lessons depends on the soundness of the strategy which gave rise to the situations, it is as well to consider here the opinion of a writer like Mahan[2]:—

"He next framed, upon lines equal both in boldness and scope to those of the Marengo and Austerlitz campaigns, the immense combination which resulted in Trafalgar. . . . The events of the following ten months, therefore, have an interest wholly unique, as the development of the only great naval campaign ever planned by the foremost captain of modern times. From his opponents, also, upon whom was thrown the harder task of the defensive, was elicited an exhibition of insight, combination, promptitude, and decision, which showed them to be, on their own element, not unworthy to match

1 William Pitt and the Great War, p. 526.

2 Influence of Sea Power, pp. 140, 142.

with the great Emperor. For Napoleon was at this disadvantage—he could not realize the conditions of the sea. Accustomed by forethought and sheer will to trample obstacles under foot. . . . he could not believe that the difficulties of the sea could not be vanquished by unskilled men handling the ponderous machines entrusted to them, when confronted by a skilful enemy. With steam, possibly, this inequality of skill might have been so reduced as to enable the generalship of Napoleon, having also the advantage of the initiative, to turn the scale. With sailing ships it was not so; and in following the story of Trafalgar it must be remembered that the naval superiority of Great Britain lay, not in the number of her ships, but in the wisdom, energy, and tenacity of her admirals and seamen. At best her numbers were but equal to those arrayed against her."

James[1] calculates the Allied Navies as having an effective strength of upwards of 70 battleships against at most 83 British, and remarks how carefully Napoleon studied Steel's list.

The first plan was, briefly, that the Toulon and Rochefort squadrons were to proceed to the West Indies, and after reinforcing French garrisons there, to raid the British possessions with the object of forcing the British Government to send a superior fleet in pursuit, thus weakening the force in European waters sufficiently to give the Brest fleet its chance. The Rochefort squadron, under Missiessy, reached Martinique on February 20th. It was followed by Admiral Cochrane, who had been blockading Ferrol; a detachment from the squadron observing Brest being detached to relieve him. Villeneuve, having waited for heavy weather to assist him in evading Nelson, had several of his ships disabled and returned to Toulon.

A second combination, that of a junction of the Brest and Toulon fleets in the West Indies, was also defeated by the closeness of the blockade at the former port. Villeneuve succeeded in temporarily eluding Nelson, driving Orde's squadron away from Cadiz, and effecting a junction with the Spanish squadron there; he reached Martinique on May 14th, but Ganteaume remained hermetically blockaded in Brest.

Finally, Napoleon fell back on the following combination[2]:—

"Two ships of the line, now nearly ready at Rochefort, should sail under Rear-Admiral Magon, carrying modified instructions to Villeneuve. The latter was now commanded to wait 35 days after Magon's arrival, and then, if Ganteaume had not appeared, return direct to Ferrol. . . . At Ferrol he would find 15 French and Spanish ships, making with his own and Magon's a total of 35. With these he was to appear before Brest, where Ganteaume would join him, and with the combined force of 56 ships of the line at once enter the Channel. Magon sailed with these orders early in May, and on June 4th reached Villeneuve, just in time to ensure the direction given by

1 Naval History. Vol. III., p. 298.

2 Mahan, Influence of Sea Power. Vol. II., p. 154. c.f. James's Naval History, pp. 299—300.

the latter to his fleet upon its return. To facilitate the junction at Brest very heavy batteries were thrown up, covering the anchorage outside the Goulet; and there in May Ganteaume took up his position covered by 150 guns on shore."

How efficient for the purpose these batteries were was proved on August 22nd, when Admiral Cornwallis, with 17 sail-of-the-line attacked the 21 French ships, which moved out into the roadstead to await Villeneuve. The French ships met the British under weigh, but declining an engagement, drew the van of the latter under the fire of the batteries.[1] Although the range was long, and the fleet was extricated as soon as possible, a considerable amount of damage was done, and Admiral Cornwallis himself had a narrow escape.

Nelson's pursuit of Villeneuve to the West Indies, his anxiety as to the safety of our islands, his embarkation of troops to aid in their protection, are all deeply instructive; but must be considered as outside the scope of our investigation, except that we see that these operations constantly placed our naval forces in local numerical inferiority, and any deductions drawn from the campaign, which do not fully take into consideration the superiority of the personnel, which enabled great risks to be taken with comparative impunity, will not be safe guides in future warfare.

Calder, with 15 ships, intercepting Villeneuve on July 22nd on his way back to Europe with 20, achieved a partial victory and captured two ships. The Ferrol and Rochefort squadrons were within striking distance,[2] and he had no friendly port to fall back on; yet this did not save him from being tried by court-martial and severely censured. Could better proof be wanted of the extraordinary high general standard of efficiency attained by our sea service at this period?

If it is admitted, as I think it must be, that the failure of Napoleon's schemes was brought about by the genius of Britain's naval commanders, and the superiority of the personnel, and not by false strategy, we can proceed to search for lessons applicable to ourselves in the accounts of the resulting operations.

(b) Operations.

Missiessy's Raid.

Missiessy's squadron, consisting of one 3-decker, four 74's, three 40-gun frigates, and two corvettes, carrying 3,500 troops under General Lagrange, and a large quantity of military stores, including a considerable train of artillery, arrived at Martinique on February 20th, and on the 21st sailed for Dominica in the West Indies.

1 James. Vol. III., p. 304.

2 On July 23rd, Rear-Admiral Allemand was on the very spot on which the battle of the preceding day had been fought.—James's Naval History. Vol. IV., p. 12.

Fortescue[1] sums up the British situation as follows:—

> "General Myers, the Commander-in-Chief, had been sadly harassed by privateers, by the weakness of the British squadron both in quality and quantity, and above all by a sickly season, which had wrought special havoc in Dominica, Antigua, and St. Lucia. In the last-named island in particular the 68th Regiment had lost over 500 dead, and over 170 invalided to Europe during the last six months of 1804, while in Myers' own staff, civil and military, 12 out of 16 persons had perished. He had asked for reinforcements but none had yet arrived; and Missiessy may therefore be said to have come at a good moment for himself."

To meet the French attack, Brig.-General Prevost had about 300 men of the 46th Regiment, 20 Royal Artillery, 400 West India Regiment, and a few companies of Militia, "but even this handful of men he was compelled to divide between Roseau and Prince Rupert's Bay, the maintenance of the harbour at the latter point being vital to the safety of the island."[2]

It is a little difficult to give an accurate account of the attack on Dominica. In the first place, James and Fortescue differ in their details, and in the second, not even the name of Roseau appears in the map given by Fortescue. General Lagrange divided his forces, landing about 7 a.m. with his main body, which James gives as 900, under cover of the guns of three line-of-battle ships about three miles south of Roseau. The troops, three companies, one of the 46th, one of West India, and one Militia, under Major Nunn, opposing the landing, fell back to a defile leading to Roseau; here, reinforced with two Militia companies, some men of the 46th, and two light guns, they held their own, and inflicted severe loss on the French, who were reinforced, bringing their strength at this point to 2,000. About 9 a.m. a second force, consisting, according to James, of 500 men, landed a mile and a half north of Roseau, at Morne Daniel, where there was a small redoubt.

The landing was opposed by about 100 Militia, who were driven from the beach by the guns of the men-of-war, after attacking the boats gallantly. The redoubt, with a garrison of ten Regular soldiers and a few Militia, was captured after a desperate resistance, and the French then landed 200 men to get in rear of O'Connell's[3] detachment. The Brig.-General thereupon ordered his Regular troops to retreat to Fort Cabril at Rupert's Bay, leaving the Civil Governor to negotiate the capitulation of Roseau. The casualties on either side, according to James's Naval History, were: British Regulars, 42 killed and wounded, including three officers, and eight prisoners, including one officer. No record exists of the Militia losses, which were severe. French, killed, three officers and 32 men; wounded, five officers and 77 men.

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1 History of the British Army. Vol. V., p. 245.

2 *Ibid*, p. 246.

3 O'Connell succeeded to the command on Nunn being wounded.

In the meantime, two 74's and three frigates had been engaging Forts Young and Melville, which protected the town and anchorage; the former mounted five 24-pounders and three 18-pounders; the latter five 24-pounders. The remainder of the French squadron joined in later. Fort Young had a furnace for heating shot, and fired several hot shot during the action. It is annoying that no more details are given concerning one of the very few actions between ships and shore batteries during this period. We do not know what damage was sustained on either side. The only record is that of James:—"The united columns then attacked, and at 4 p.m. entered Fort Young, where they found about 300 Militiamen, who laid down their arms." This must have been after the retreat of Prevost.

Incidentally, James mentions that the town was burnt to the ground, in spite of the efforts of the French troops to save it, having been set alight by the wads of the guns in Fort Young. There is no record of any damage on either side, although the ordnance of the shore batteries were heavy guns; judging from accounts of other actions in the Naval History, I think it is safe to assume none was done. This may be explained in two ways. We know Missiessy was a cautious commander, and we may assume he was fully cognizant of the power of shore batteries, as he had lain for so long in complete security under the French batteries defending the Roads of Aix. The fire of the squadron may therefore have been simply a feint to keep the garrison tied to the batteries, the ships remaining at extreme range. On the other hand, the fire of the batteries may have been very bad; there were only a score of Regular gunners in the island altogether. Hot shot fired at decisive ranges were very much dreaded by all sailors; one lodged in a ship's side had to be cut out, a difficult operation under fire.

General Lagrange considered Fort Cabril, to which Prevost had made good his retreat, too strong to attack, so in Fortescue's words, "although Roseau was lost, Dominica and its precious anchorages were saved." Fortescue's account is mostly drawn from Prevost's despatches to Myers, the Commander-in-Chief at Barbados, whereas James seems to have had access to local private correspondence, and certainly his account discloses considerable prejudice against Prevost, so one has to be careful in one's comments, but the point which strikes one is this—if Fort Cabril was the important point from a military point of view, why was its possession hazarded by an attempt to hold a position untenable against such a force?

Had Missiessy consented to follow Lagrange's plan of a simultaneous attack, Fort Cabril must have fallen for want of a proper garrison. No arrangements appear to have been made beforehand, even for water or food. One can perhaps understand Missiessy's disinclination to disperse his fighting ships, but, if the troops had re-embarked at once, the whole expedition might have arrived at Prince Rupert's Bay long before Prevost's

scattered forces straggled in. A reference to the map suggests that the probability was, that the Northern Bay, owing to its situation with reference to Martinique, was a strategic anchorage of some value, but that, owing to its inaccessibility by land, it was unsuited to commercial requirements, and that therefore the trading town had grown up without reference to its suitability for defence. If this conjecture is right, it only shows the danger of allowing commercial considerations to hamper defence. The resistance, such as it was, did not prevent the commercial interests suffering more severely than other localities visited by this expedition, and we see the retention of Fort Cabril prevented the French carrying out Napoleon's instructions, and retaining possession of their conquests.

This raid is also instructive for two reasons; in the first place we can see the land force that a great commander thought it expedient to send on such an expedition; in the second, it is instructive to know that Villeneuve and Missiessy were expressly forbidden to land their crews for the purpose of operations on shore.[1] Mahan adds the comment, "a decision of the great Emperor worthy to be remembered in these days."

Missiessy subsequently visited St. Kitts, Nevis, and Montserrat, levying ransoms from the towns, burning or capturing merchantmen in the roads, and dismantling batteries, thus depriving our commerce of anchorages safe from privateers. After reinforcing Guadeloupe, Martinique, and St. Domingo, he sailed for Europe on March 28th, arriving in the Roads of the Isle of Aix on May 20th.

To those fond of using the shibboleth "Command of the Sea" without true understanding, the following passage from Fortescue[2] may carry some enlightenment:—

> "Myers, however, knew nothing certain of these movements and remained in the greatest anxiety. He had received a welcome reinforcement of three battalions at Barbados on March 11th, but in the presence of a superior French squadron he was at a loss to know how to distribute them. Commodore Hood was indeed collecting his ships at Descada, but with only one vessel of the line and a few frigates he could not hope to engage Missiessy. Moreover a convoy from England, carrying troops for Jamaica, was known to be on its way; and one straggling ship from it actually arrived at Barbados on March 27th, so that Myers could not tell what disaster might be impending. A little more enterprise on the part of Missiessy might have made things very uncomfortable for us at this time in the West Indies."

Thanks to Nelson's quick pursuit of Villeneuve, Napoleon's instructions for the raiding of the West Indies were not carried out. He calculated on over 11,000 land troops being available,

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[1] Influence of Sea Power. Vol. II., p. 142.

[2] History of the British Army. Vol. V., p. 249.

including 3,400 in Missiessy's squadron, 5,100 in Villeneuve's, and 840 on board Rear-Admiral Magon's ships, the remainder being made up from drafts from Martinique and Guadeloupe.

Though the raid was merely a feint, and was not to be allowed to interfere with the main design—a naval superiority in the Channel—the orders to Villeneuve were comprehensive enough, including the capture of Barbados, the headquarters itself. The only thing, however, for which Napoleon blamed his admiral was for not leaving his expeditionary troops behind. This is instructive, for it shows how little value a few thousand troops are to a Government with very large land forces at its command, and how readily a strategist like Napoleon was prepared to sacrifice them to gain his main object.

THE DIAMOND ROCK.—The only land operation which invites our attention is the capture of Diamond Rock by Villeneuve's squadron. Diamond Rock, lying off the coast near the southern entrance to Fort Royal Bay, Martinique, was armed and commissioned by Commodore Hood in June, 1804. Its armament of three 24-pounders and two 18-pounders was sited as follows[1]:—"One of the 24-pounders, fitted upon a circular carriage, commanded the landing place, and would reach in an easterly direction nearly across the Bay of Marin. Another was mounted on the north-eastern side, and the third 24-pounder about midway up the rock. Upon the summit, which commands an immense distance, were mounted the two 18-pounders." During the whole period till its capture in May, 1805, it had harassed French shipping. Admiral Villaret Joyeuse, the Governor of Martinique, had tried in vain to persuade Missiessy to attack it. It had fired with some success on the Villeneuve fleet as it entered. At the end of May it was attacked by the following force:—Two 74's, a 36-gun frigate, a 16-gun brig, a schooner and 11 gunboats, carrying 300 or 400 land troops.

The following is James' account of the action:—

> "Considering it impossible to defend the lower works against such a force as was approaching, Captain Maurice abandoned them, spiking the two guns, drowning the powder, and cutting away the launch from the landing place. At eight a.m. the ships opened their fire, which was returned by Hood's battery and Fort Diamond, the one being the 24-pounder about midway up the rock, the other the two 18-pounders on the summit. The ships bombarded the rock during May 31st and June 1st, and until about 4.30 p.m. on the 2nd, when Captain Maurice, having, as he states, 'but little powder left and not a sufficient quantity of ball cartridges to last till dark,' threw out a flag of truce. At five p.m. the "Fine" schooner hoisted a similar flag, and terms honourable to the Garrison, which consisted of 107 officers and men, were agreed to the same evening. In their defence of this extraordinary post the British sustained a loss of only two men killed and one man wounded. The *Chef d'Escadron* Boyer enumerates the loss of the French troops 'from a hasty calculation' at about 50 in killed and wounded. Captain Maurice considers

[1] James's Naval History, p. 243.

> the loss of the French who landed at the foot of the rock, to have amounted to at least 30 men killed and 40 men wounded, exclusively of the loss sustained on board the ships and boats. Three gun boats and two rowing boats are stated to have been entirely lost." [1]

This is a very fine example of the relative strength of suitably sited guns ashore to the armament of ships. It is obvious from the narrative that it was not the fire of the enemy's ships that caused the surrender, but the failure of ammunition, especially that for small arms to repel the land attack. It is the more interesting because when General Grey captured Martinique in 1794 he caused this islet, which was then a French fort, to be attacked from the land side, from which it was less than a quarter of a mile distant. Here is Fortescue's account[2]:—

> "This rocky island, which is about 100 feet high and 300 yards in circuit at the summit, mounted 22 pieces of the heaviest ordnance, and, having vast stores of ammunition, besides apparatus for heating shot, effectually barred the entrance of the fleet into the harbour. Within two days, however, Grey's engineers had brought up and placed in battery two 6-inch howitzers, which, taking the defences in reverse, induced the garrison to surrender after two hours' firing, with a loss of 40 killed and wounded out of 200 men."

One cannot help remarking in all accounts of West Indian fighting the amazing number of batteries protecting every bay, and the consequent frittering away of troops to garrison them. Even in those days, when guns and ammunition were cheap, and mountings simple, there must have been some special reason for this prodigality. The absence of roads, and the mountainous nature of the islands, suggests that all transport must have been done by water. We know that, even in peace time, the Caribbean Sea swarmed with pirates, and that in war it was the happy hunting ground of the privateer. When, in addition, we remember the frequent calms in those regions, the most likely solution appears to be that these open batteries were erected at every anchorage to scare off freebooters, and that probably they depended for personnel on the estate employees, who would be enlisted in the local militia. This would explain not only their numbers, but their absolute defencelessness on the land side.

MILITARY EXPEDITIONS.

To complete our sketch a short reference to military expeditions undertaken or contemplated by the English Government is desirable. In consequence of the situation in the Mediterranean in the spring of 1805, the Government considered it necessary to send Lieut.-General Sir James Craig to Malta, with four battalions, and small detachments of cavalry and artillery, with very general instructions. He might, if necessary, protect Sicily from the French, with or without the consent of the King

[1] James's Naval History, p. 336.
[2] History of the British Army. Vol. IV., p. 355.

of Naples, co-operate with the Russians in Italy, or occupy Alexandria. Even this small force found a difficulty in reaching its destination; by ill-luck their arrival off Finisterre coincided with Villeneuve's escape from the Mediterranean. The convoy[1] took refuge in Lisbon on May 7th, and Craig prepared to seize the Portuguese forts and defend himself; on the 10th, however, it sailed again, being forced to leave the port in consequence of the protests of the French ambassador. Luckily, on the 11th[2] the convoy fell in with Nelson off Cape St. Vincent, who detached the "Royal Sovereign" to augment the convoy as far as Gibraltar, but Craig's troubles were not yet over.

> "When the armament reached Gibraltar it was met by a command to halt there till further orders. Rear-Admiral Knight dared not keep the ships at anchor for fear of the Spanish gun boats at Algesciras. For six weeks, therefore, the convoy cruised on and off Gibraltar in anxious suspense, until at last on June 22nd Rear-Admiral Beckerton received directions to furnish ships to bring it safely to Malta. Even then the passage was delayed by a gale; and it was not until July 18th that Craig finally carried his detachment into Valetta."[3]

This is a wonderful instance of how limited and local command of the sea really is, even to the power whose main battle fleets are incontestably superior. Fortescue[4] gives two comments on the expedition worthy of consideration:—

> "'The force was unnecessarily strong for the defensive,' was Robert Craufurd's criticism, 'and too weak to take the offensive.' Napoleon was openly and justly contemptuous. 'The celebrated secret expedition,' he wrote, 'entered Lisbon on May 7th, and left it on the 10th. Whither is it bound? . . . If it is destined for Malta, all the better. Nothing can better prove the folly of the English Cabinet; for these combined Continental movements founded on a few thousand men are pigmy combinations. If, therefore, you find the expedition is gone to Malta, you may rub your hands, for the English will have deprived themselves of 6,000 men and a certain number of ships.'"

More time was lost in settling plans of action with General Lascy, the Russian Commander-in-Chief in the Mediterranean; and as the combined force did not actually land at Naples till November 20th, and had no effect on the campaign which culminated at Austerlitz, their subsequent career need not be considered. The expedition is, however, in a way important. It was the first attempt to adopt an offensive strategy. If it was a pigmy one it was the fault of the nation which declined to provide an Army commensurate with its responsibilities.

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[1] Convoy: Rear-Admiral Knight, "Queen," 98; "Dragon," 74; 37 transports containing, in addition to the expeditionary force, two battalions for Gibraltar.

[2] 12th according to James.

[3] Fortescue, History of the British Army. Vol. V., p. 267.

[4] *Ibid*, pp. 266—267.

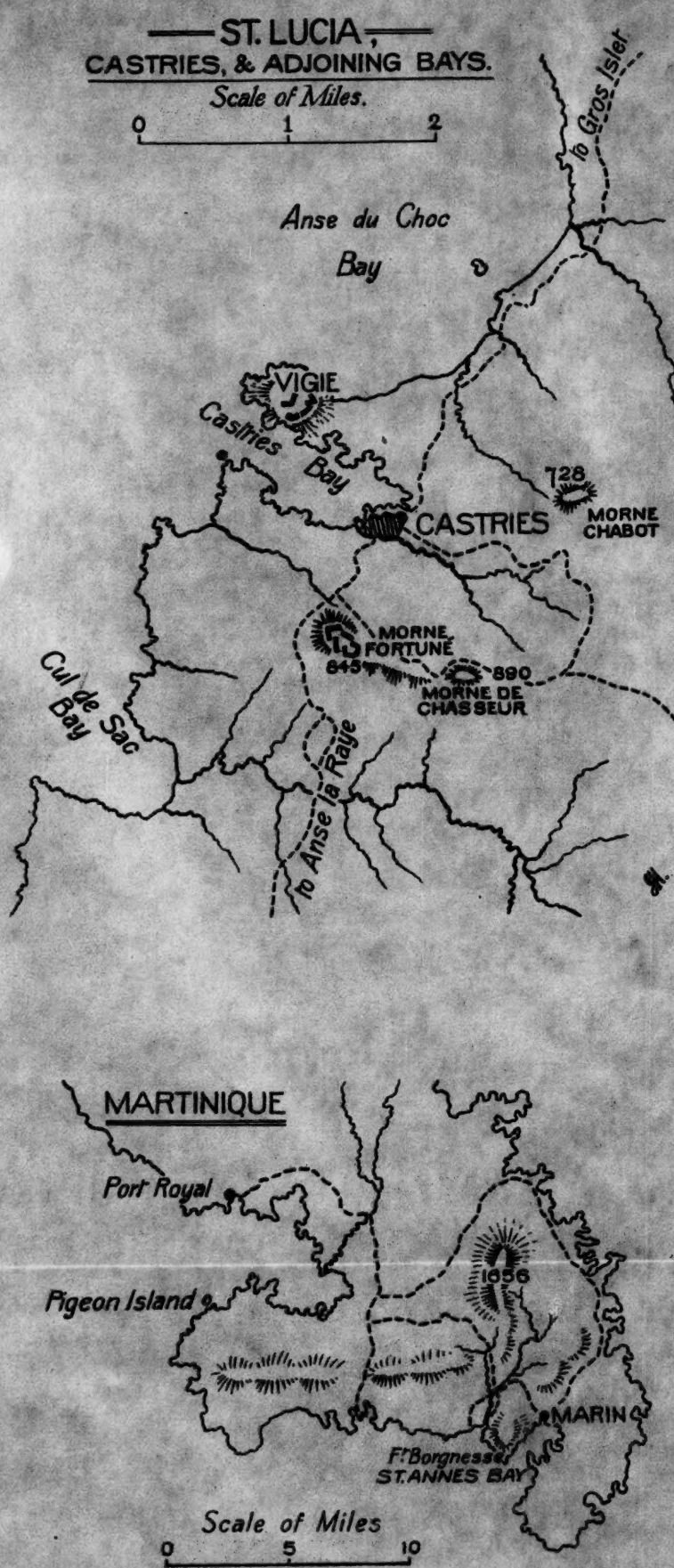
A second expedition, numbering 7,000, destined for the West Indies, which was embarked but never actually sailed to that destination, must have severely tried the resources of the War Office.

It is of great interest to know that Pitt, realizing the relief that the destruction of Ferrol would be to our sorely-tried Navy, was prepared to find 15,000 or even 20,000 troops to accomplish this object, and despatched Sir John Moore with the utmost secrecy to reconnoitre that port early in December, 1804. In consequence of his report the idea was dropped. The pages of his diary, referring to this service, are in themselves an education for anyone who may be called on to perform a similar duty.[1] Sir John Moore also reconnoitred the port of Boulogne in August, 1805, immediately after Napoleon had marched for Ulm and Austerlitz. Again it was decided that any attempt at landing was attended with too much risk to justify the experiment. These two incidents are proofs both of Pitt's desire for offensive action, and also of the great strength of the enemy's base ports.

Crude and blurred as is this outline of the master strategist's designs, it is yet sufficiently plain to convey some lessons to those not wilfully blind. If we grasp the fact that the true interpretation of command of the sea is decisive superiority at the vital point, we can find nothing in Napoleon's actions to negative the assertion that he unwaveringly pursued that object. Forestalled by Britain's declaration of war, and confronted by a superior Navy, he adopted the only course open to him. Within the security of his impregnable fortified bases he augmented his own Navy, whilst, by every device open to him, he applied the doctrine of "wearing out" to his enemy. That he did not succeed was owing, not to false principles, but to the hardy spirit animating the whole of that noble service, from Nelson, binding together his crazy ships with hawsers, to Wright of the "Vincejo," hauling up his damaged brig high and dry in an enemy's port to patch up her shot holes. Later, his preparations completed, we see Napoleon trying to outmanœuvre his enemy by feints they could not ignore, but never losing sight of his ultimate objective, maritime preponderance on the sea across which he designed to launch his Army with overwhelming strength.

We are apt to let the ultimate result in 1805 blind us to the real peril of the situation created by that wonderful brain. Had Villeneuve been the equal of Nelson, or Ganteaume of Cornwallis, can any declare with certainty with which belligerent victory would have rested? Again, can anyone honestly maintain that trade is less vulnerable to-day, or British policy less dependent on popular clamour? If these arguments cannot be confuted, then it follows that a world-wide strategy may again suddenly invest any of our fortified ports with an importance which may expose it to an attack very different from a casual raid by a wandering commerce destroyer.

[1] Diary of Sir John Moore. Vol. II., pp. 97—108.


ST. LUCIA,
CASTRIES, & ADJOINING BAYS.
Scale of Miles.
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Anse du Choc
Bay
Ile Gros Islet
VIGIE
Castries Bay
728
MORNE CHABOT
CASTRIES
MORNE FORTUNE
845
890
MORNE DE CHASSEUR
Cul de Sac Bay
Ile Anse la Raye
MARTINIQUE
Port Royal
Pigeon Island
1656
MARIN
Ft Borgnesse
ST. ANNES BAY
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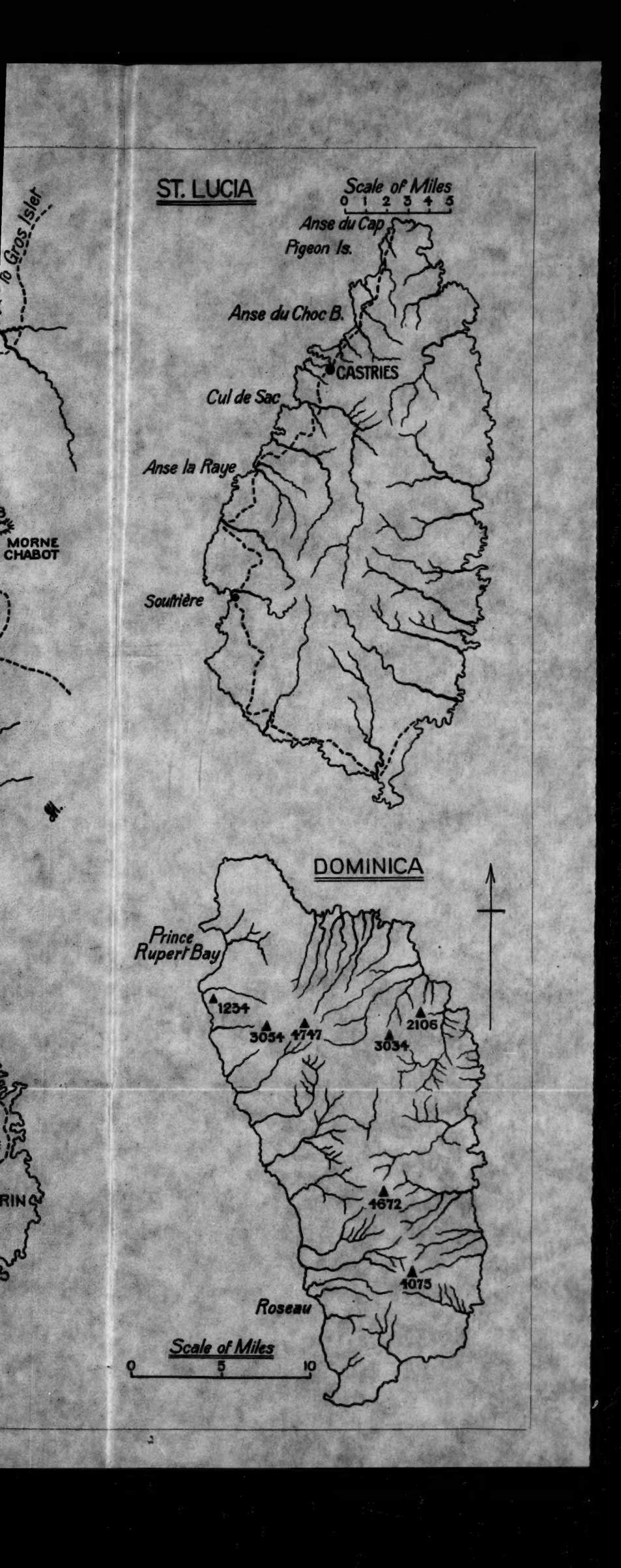
ST. LUCIA
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0 1 2 3 4 5
Anse du Cap
Pigeon Is.
Anse du Choc B.
CASTRIES
Cul de Sac
Anse la Raye
Soufrière
MORNE CHABOT
DOMINICA
Prince Rupert Bay
1234
3034
4747
2106
3034
4672
4075
Roseau
Scale of Miles
0 5 10

THE STANDARDIZATION OF MECHANICALLY-PROPELLED COMMERCIAL VEHICLES FOR MILITARY PURPOSES IN TIME OF WAR.

By COLONEL H. C. L. HOLDEN, C.B., F.R.S., late R.A.

(A paper read before the Imperial Motor Transport Conference. Reprinted by permission).

THE reasons why it is impracticable for the Army to maintain in peace time the mechanical transport vehicles which it will require in time of war, and why it is consequently necessary to subsidize vehicles in ordinary commercial use in order that they may be immediately available on the outbreak of hostilities, have been fully explained in a paper which has been prepared by Captain Davidson, R.E., the Secretary of the Mechanical Transport Committee of the War Office.

The object of the present paper is to deal with the vehicles themselves, their type and details of their design, having special reference to the requirements which have to be met in order to make them suitable for military purposes.

The experience of the last eight or ten years has clearly proved that the lorry, driven by an internal combustion engine using petroleum spirit or similar fuel, is the one which best fulfils not only commercial requirements, but also the needs of the transport columns of the Army. Up to the present all practical vehicles driven by steam engines have required a comparatively large amount of water after traversing a few miles. Though this in time of peace might not be a serious difficulty, such supplies in time of war would often be unobtainable where required, and, moreover, the necessities of men and horses would have, in any case, to be met before those of the mechanically-propelled vehicle.

On the other hand, the internal-combustion-engined vehicle requires very little water, and that only to make up losses occurring in most cases from accidental causes.

It may here be pointed out that the adoption of a commercial vehicle suited, as this is, only to ordinary roads, practically confines the operations of the military transport when using these vehicles to the same roads, and any distribution of stores involving going across country will have to be effected in the usual manner by means of horse transport.

The types of mechanically-propelled vehicles which have been selected as most suitable for military purposes are two in number—internal-combustion-engined lorries, having wheels shod with solid rubber tyres, and carrying useful loads of three tons and 30 cwts. respectively. The three-ton vehicles are officially designated as coming under Class A, the 30-cwt. type under Class B.

In the early days of the discussion of the general question of subsidizing commercial vehicles for war purposes it was abundantly clear that, in order that they might be utilized to the utmost extent in regular service in time of war, it was essential that not only should the vehicles themselves be standardized, but also as far as possible their component parts, and, moreover, that it should be possible for a driver to drive any individual vehicle as well as another. The advantages of such standardization of components are that repairs and replacements can be made in the field with the least difficulty and greatest despatch, and that the number and description of such parts and spares to be carried and provided are reduced to a minimum.

The first step to be taken was to get the manufacturers of the above-mentioned vehicles to meet the Mechanical Transport Committee, and discuss and decide upon such lines of design as would meet the military requirements without appreciably interfering with commercial utility. A number of conferences with the manufacturers were held in the year 1911. Drawings and specifications were subsequently prepared by the War Office, and in 1912 the first trial took place of vehicles built to the subsidy requirements, the results of the tests they were put to being eminently satisfactory.

The above brief statement sums up the history of the present subsidy scheme for Class A (three-ton) and Class B (30-cwt.) internal-combustion lorries. I will now turn to the details of these vehicles. The gross weight of the Class A lorry must not exceed seven and a half tons, this being the limit for military bridges made in time of war, and of this seven and a half tons the useful load must be three tons. The crew of three men, their kits, accoutrements, etc., are estimated at eight cwt., and the weight of the body is likewise taken at 22 cwt.; this leaves three tons for the weight of the actual chassis. In the case of Class B, where the gross weight of the vehicle must not exceed five tons, the weight left for the chassis is two tons five cwt. If, as is probably the case, the chassis weights can be kept lower than these figures, so much the better. Conditions as regards speed are also laid down, the maximum speed for class A being 16 miles per hour, and for Class B 20 miles per hour.

Again, the vehicles must, when fully loaded, climb gradients of one in six on roads in normal condition, and also must surmount the same gradients when running without load.

The speeds on the bottom gear for the two vehicles should be about three and one-third and four miles per hour respectively. The engines have to be fitted with governors controlling the engine speed to 1,000 revolutions per minute.

The conditions laid down that the vehicles must climb a gradient of one in six when fully loaded at three and three-quarter miles per hour for the A Class and four miles for the B Class, with engines controlled by governor so as not to exceed a speed of 1,000 revolutions per minute, determined within close limits the minimum sizes of engines possible. The engines have to be four-cylinder ones, and for Class A the minimum bore is four and a half inches or 110 mm., and for Class B four inches or 100 mm. Such engines with a stroke ratio of not less than five inches will easily give off the power that is required to fulfil the various conditions and tests laid down by the War Department.

Various details in the construction and design of the engine are insisted upon, embodying the latest and best practice and ensuring accessibility of parts for inspection and repair and cleanliness by retention of oil. Care has also been taken that, whilst the engine is accessible from above and either side by removing the bonnet, which latter must be removable in its entirety, the working parts are properly shielded from mud and dust: this is especially necessary for military work in war time, as the vehicles may have to be running for long hours with no opportunity for their being properly cleaned, as they would be and should be in ordinary use.

Mention has been made of the engine being fitted with a governor to automatically control its speed to 1,000 revolutions per minute. Although it is true that higher speeds can be obtained from a vehicle whose engine is not so automatically-governed, this is the only real advantage that can be claimed for such a system. On the other hand, the automatically-governed engine is secured from being overstrained by racing, whether this be caused by accidental means or by careless driving, and besides this the speed of the vehicle on any one gear is more or less constant, tending to facilitate the running of the vehicles generally in convoy. In addition, the driver is undoubtedly relieved of a certain amount of mental strain.

Although it would be wrong at the present time to try, by any sort of regulation, to make all engines interchangeable, even as a whole amongst different makers' vehicles, it is highly desirable that such a component as a magneto should be, and that it should be possible to remove one magneto and replace it by another in a few minutes, and without having to make any adjustments to or re-time the new magneto. This has been arranged for in the new subsidy vehicle by adopting a standard coupling and standard attachment for the magneto to the engine. It might be said that commercial vehicles do not generally carry a spare magneto, and that magnetos do not

often fail; the reply to this is that when they do fail the vehicle is useless, and that a broken-down vehicle in time of war is an infinitely more serious matter than in time of peace.

The radiator, from its position on the vehicle and also from its mechanical construction, is somewhat liable to damage, and so provision has been made in the regulations for these to be interchangeable in their important features, *viz.*, mounting on the chassis on trunnions, the bearings for which are in halves, to facilitate removal and replacement of radiators, and the positions and dimensions of the water inlet and outlet connections have also been fixed. The water connections have been made large enough to allow of natural circulation, this system being preferred by some makers to that of circulation by pump.

A guard, consisting of a stout bar or tube, has to be provided across the radiator a few inches from it to protect it more or less in case of collision; this bar has naturally to be fixed and supported by the frame of the vehicle and to be entirely separate from the radiator itself.

It is of great importance, from a military point of view, that a transport lorry should have a considerable radius of action without having to replenish with fuel, and as it may be called upon to travel 80 miles out and 80 miles back without being able to get fresh fuel, it is clear that the radius of action should be not less than 160 miles. The tank therefore is calculated to hold 30 gallons, sufficient for, say, 200 miles under normal conditions. For the sake of simplicity, the position of this tank has been fixed under the driver's seat, so that the engine receives its supply by gravity, but in the case of an emergency, such as might arise on a very steep hill, when the tank was nearly empty and the level of the fuel in the tank too low to supply the carburettor properly, provision has been made for air pressure to be put into the tank by means of a small hand pump, such as is used for inflating bicycle tyres, and the pressure raised to one lb. or so per square inch, which will overcome any difficulty in the supply. The fuel tank is fitted with a visual indicator so that the driver has no excuse for not knowing the amount of fuel it contains at any time.

It has already been stated that it is considered of the utmost importance that the controls and driving of all subsidized lorries should be as nearly as possible identical. This uniformity has been obtained by standardizing all the various controls used by the driver in the operation of the vehicle, *viz.*, steering, engine controls, brake and clutch pedals, throttle and ignition levers, not only so far as their action and position are concerned, but also, so far as is practicable, their range of movement and corresponding effect.

The clutch and brake pedals are operated by the left and right foot respectively as is usual, and the accelerator, when fitted, is on the right of the brake pedal. The ignition and

throttle levers are both on the steering column below the steering wheel, and are moved horizontally forward to increase speed.

The relative angular movement of the steering wheel to that of the road wheels it controls must be from eight and a half to nine and a half to one.

The change speed arrangement is of the gate type, for four forward speeds and reverse, and has two slots, the reverse, first and third speeds being obtained by a forward movement of the lever, the second and fourth speeds by a backward one towards the driver. In order to prevent any mistake on the part of the driver, the change speed lever is much shorter than the brake lever, and, in addition, has a ball-shaped head.

A live axle has been specified instead of chains or gear for the final drive or transmission to the road wheels, the main reason for this being the better protection from mud and dust that is thereby afforded. The perfection to which the live axle transmission has more or less recently been brought has fully justified this method being adopted instead of the older form of chain drive. The only parts of the back axle that could well be standardized without interfering too much with individual maker's design, are the axle arms and their floating bushes; only these parts, therefore, have to be made to standard dimensions. It is laid down as a condition that all the driving parts of the back axle should be removable without it being necessary to take the weight off the back wheels.

The diameter of the wheels and their tyres have been fixed at 1,050 mm. for hind wheels and 900 mm. for front wheels for Class A vehicles, and 1,030 mm. and 870 mm. for Class B. These diameters have been laid down in order to obtain a good ground clearance, so necessary in case of vehicles which may have occasionally to travel on roads with deep wheel ruts, or may, for one reason or another, get on to the soft sides or margins of an ordinary road. The minimum ground clearance, when the vehicle is fully loaded and the tyres are not worn, must be 12 inches, and more than this would be preferred if design admits of it.

In order that subsidy vehicles may ascend without difficulty, either when fully loaded or when light, hills having gradients as steep as one in six, it has been found that the total gear reduction from the engine to the back axle on the lowest speed has to be about 40 to 1 in the case of Class A and 33 to 1 in Class B. This will, generally speaking, necessitate, where a bevel drive is employed, a double reduction gear in the back axle. Such parts as ball bearings are, of course, standardized, and screw-threads, nuts, bolts, etc., must be made to the dimensions laid down by the Engineering Standard Committee in their reports.

There are two fittings which are essentially necessary for military vehicles. The first is the towing hook, one of which

is fitted, so to speak, at each corner of the frame. Towing hooks are required in order to facilitate the attachment of ropes or chains when a vehicle has to be extricated from a position whence it is unable to get out by means of its own power or when its driving mechanism has broken down and it has to be towed.

The other fitting is a ground sprag. This is a fitting which is not generally in use at the present time on commercial vehicles, but is essential for military vehicles which have to travel in convoy, *i.e.*, in single line, and possibly along narrow roads, at close intervals.

The failure of brakes, driver missing gear, or some other cause leading to the running back of one's vehicle whilst going up hill might, under such conditions, easily cause a serious accident, but in any case would create confusion and cause delay in the progress of the convoy, which in itself might have serious results.

Standardization of bodies for various purposes is hardly necessary or desirable, but their attachments to the chassis have been standardized so that bodies may be removed, where crane facilities exist, as at railway depôts, whether loaded or unloaded, with the greatest ease and in a minimum of time.

I have now dealt with the main features which have to be embodied in a vehicle before it can be presented to the War Office for enrolment as a type and before undergoing the acceptance trials. Those who are anxious to know more details will find them set out in Technical Appendix A of the War Department Subsidy Scheme, 1912, and the additions thereto issued in March, 1913.

I have only to add in conclusion that already quite a number of the principal makers of lorries have submitted vehicles to the trials which have been held by the War Office, and have been successful in having their vehicles approved as types which will be subsidized if and when required.

RECOLLECTIONS IN PORTUGAL AND SPAIN DURING 1811 AND 1812.

By CORNET FRANCIS HALL, 14th Light Dragoons.

(*Continued from* JOURNAL *for December, 1912, page* 1735).

CHAPTER VIII.

ESTREMADURA ONCE MORE. THE FALL OF BADAJOZ.

THE masterly capture of Ciudad Rodrigo having secured our front from insult, the cavalry were withdrawn from the Coa and distributed, for the convenience of forage, along the valley of the Mondego, where I joined my regiment at the village of Torraes[1] early in February. Here we were magnificently lodged in the mansion of a Fidalgo, sufficiently large to hold a brigade, and looking still larger from the contrast of the miserable dwellings about it. (Strange how wealth dilates our corpuscula! I doubt if the giants of old were anything more than broad-acred men, who could not breathe but in halls of extraordinary dimensions, or dine except on oxen roasted whole.) We found these spacious apartments, with their long, open windows, not so well suited to the season as a snug housekeeper's room with glazed windows, in which we established ourselves during our stay; we were even sometimes fain to solace ourselves over the blazing logs on the kitchen hearth, notwithstanding the housekeeper's grave remark, "That when the Señor came there, with all the ladies of the family, they had brazieros[2] in their apartments, and never came into the kitchen." We did, indeed, as usual, build up a chimney in one of the state apartments, but the smoke could never be persuaded to go up it. The spring, however, was beginning to look abroad amid violets and orange flowers, and by the middle of February we were again on our way to the South, where we had nothing to fear from cold weather. The meaning of this movement was that Lord Wellington, having now the entire disposal of his offensive means, resolved to besiege

1 Torraes, in the Mondego Valley.

2 Large portable pans of red-hot charcoal.

Badajoz, and thus remove the remaining fetter by which our operations had been hitherto limited. Our route to the scene of action lay over the ground we had traversed during Masséna's retreat, until we arrived at Thomar, eight days' march from Torraes.

Thomar is a large and lively town, with good shops, handsome streets, a cathedral, and a catholic proportion of churches. It was anciently a Roman station, as is testified by some remains of baths in the neighbourhood. It was subsequently a Commandery of the Knights Templars, as testified by the ruins of their castle, which still cover a hill above the town, and contain within their circumference a stately convent of monks, who have, owl-like, built their nests in the ruined watch tower. The church is circular, as were all those of the Templars, in imitation of the Holy Sepulchre; the altar occupies the centre, surrounded by columns, and superbly decorated; round the aisles are several oratories or chapels, containing some tolerable paintings. I entered them in company with the Superior, who conducted me through the building, but there was one, I believe, from which heretical feet should have been excluded, for I heard him sharply rate an attendant friar for leaving the door open. I passed through as many as five or six spacious courts, some of which, from their pointed arches, and their clustered columns, seemed to have been coeval with the castle, when war and devotion went hand in hand. At the end of the town a handsome stone bridge crosses the silver Nabão, which is broken just below it by a fall of five or six feet, the dashing of which sufficed agreeably to break the evening stillness. On the left bank, a long grove of orange trees, all glowing with fruit, descended to the water's edge, beyond which the stream seemed lost among woods and olive groves. This was a picture we could afford to gaze on with the more satisfaction, because it either followed or preceded good dinners, grand with delicious Tagus salmon, and digested with good wine. From Thomar, we marched, by way of Abrantes (of which I shall have to speak hereafter), into the Alemtejo, where we halted some days at the elegant little town of Vimiero, not far from Estremoz. While I was at Vimiero (whose white walls and clean houses I gratefully remember), I paid a visit to Evoramonte, an old walled town and castle, on the summit of a steep hill, which would be worth notice were there not so many in the country like it.

We marched from Vimiero to Estremoz, a town I frequently passed through, and never without a feeling of pleasure, which was partly to be ascribed to the hospitable reception I met with on my first visit. I was billeted on a respectable family, who lodged me in an apartment hung round with tapestry, representing the Trojan war, and ornamented with a dusty chandelier of antique cut-glass; but I looked on all this splendour somewhat ruefully, for I was a stranger, with neither money nor provisions, and as I surveyed the grim champions of old times,

I could not but remember how differently they fared in the intervals of battle.

> "They spread the tables, the repast prepare,
> Each takes his seat, and each receives his share;
> The King himself (an honorary sign),
> Before great Ajax placed the mighty chine."[1]

These gloomy reflections were, however, agreeably dissipated by the entrance of dinner, which my host had provided for me: a kind of hospitality which had grown extremely rare on high roads and in towns frequented by the army. Other meals followed in due succession, and what seemed odder than all, I received the thanks of my entertainers—literally for having done nothing. It seems they had been troubled by inmates who had made themselves too much at home, to the great annoyance of the family, and as "contrast is everything," I was lucky in coming after them. The great square of Estremoz has a very picturesque appearance. On one side of it are large tanks, edged and lined with stone, and shaded with the drooping foliage of large willows, round which the girls assembled with their pitchers, or linen to wash, and the monks and townspeople to gossip or lounge away the evening on benches placed round the water. On the opposite side is a large convent, in the church of which I observed a curious monument. A recumbent figure lay on a tomb, and from his body sprang a genealogical tree, nearly as high as the roof; all its branches were spreading and fruitful; but one, towards the centre, was especially distinguishable by a small glass case, containing a saint or saintling in wax, who was justly considered as the fairest apple on the tree. From Estremoz we marched to Villa Viçosa, through Borba, famous for its good wine, and for being the residence of many of the nobility while the Court was held at Villa Viçosa. Here I saw a regiment of Spanish cavalry, who might have passed for the household troops of the Mayor of Garratt.[2] Their faces were covered with all lengths and colours of beard and moustache. Some wore cocked hats, some helmets, some caps; some had straight swords, and some crooked, others antique toledos, which seemed to have rusted since the days of the Cid. Two regiments of infantry, which marched through the same day, had a much more soldierly appearance, but the cavalry looked like bandits and ragamuffins. The fault, however, was not in the men, but in a defective system of organization: a lack of staff, lack of commissariat, lack of officers, lack of pay, lack of all the stuff of which a good army is compounded, excepting heart; even this exception may seem dubious to many who have considered the progress of the Peninsular

[1] Pope's Iliad, book VII., line 386.

[2] A popular farce by Foote, in which (among other things) cowardly and undisciplined Militiamen were satirized. Four of them are robbed by one highwayman.

war, and may, in consequence, be disposed to regard Spanish courage as somewhat equivocal, but the apparent contradictions of their character in this respect admit of a solution by no means impossible. M. de Rocca, a judicious and impartial observer of the events which passed before his own eyes during the early period of the war, relates an anecdote illustrating this view.[1]

The heroic zeal with which Zaragossa, Gerona and other fortresses were defended, was worthy of Spain in her most chivalrous days. There are many of our officers who can testify to the courage with which small detachments of the Spanish armies occasionally fought beside British troops, yet in all their great battles we find their armies broken and scattered before the French columns, with scarcely a shadow of resistance. May not this seeming inconsistency be thus reconciled? The peasant who acted singly, or with a few companions, was aware of the exact bearings of his situation; his acts were his own, and he felt responsible to himself for the consistency of his conduct; his situation was nearly similar when fighting behind a wall, or in a small detachment. Here, too, he felt his ground, and was sensible of the exertions and sacrifices his situation required; but when he found himself one of a number drawn out in battle array, and placed amid movements and operations of which he understood neither the detail nor purpose, and, what was still more fatal, which he believed his General understood as little as himself, all self-confidence and consequent resolution were gone; he no longer viewed the event as within the power of his efforts to control, but considered, perhaps, that in flying from a post in which he was unconscious of his ability to do good, he was not only excusable, but even acting a patriotic part by reserving himself for some fairer occasion of serving his country.

From Villa Viçosa we marched to Elvas, where we remained while the siege of Badajoz was formed. Elvas, with its adjacent forts, is reckoned to be one of the strongest places in Europe; so, of course, it has a fitting number of bastions, ravelins, ditches, covert-ways, and all the paraphernalia of fortification, but I have forgotten, if ever I knew, what is this fitting number. I was more "impressed" by the Faith than by the *works* of the town. On the evening before Good Friday, I visited all the churches with a young Portuguese doctor, who acted as my cicerone. The altars were brilliantly illuminated and ornamented to represent a tomb, or bier, with an image of Christ lying in state. I heard a solemn service, at the conclusion of

[1] M. de Rocca (afterwards the second husband of Mdme. de Stael) wrote one of the first journals of adventure which appeared from the French side during the Peninsular War. He was a hussar officer in the Army of Andalusia. The reflections concerning the contrast between the individual courage of Spaniards and their misbehaviour as armies are in Rocca's Chapter IV.

which, to my great surprise, all the congregation began to jump on the flooring (which is commonly laid in the middle of every church for the accommodation of the ladies, there being no pews), and commenced a noisy movement with their feet, not a little resembling the O.P. dance;[1] *cui bono* I could not understand, but it seemed an uncouth winding up of the ceremony.[2]

* * * * *

The rainy season set in while we were at Elvas; town and country were deluged. The troops before Badajoz worked up to their knees in water, without the protection of a roof or dry covering at the end of the day's toil. We were comparatively in clover. Elvas had a tolerable market, but we were obliged to forage the neighbourhood for mutton. Leaving Elvas, we forded the Guadiana and marched to Olivença, a frontier town of Estremadura; it is badly fortified in the modern manner, and had been taken by the French during the war, but afterwards abandoned.[3] It formerly belonged to Portugal, but was ceded to Spain at the termination of the last *fantastica guerra,* as a priest called it, between the two nations. It is a pleasant, clean-looking town, with nothing remarkable about it but a tall, square castle built by King Denys, and still used as a prison and barrack. I lodged with a padré, who not only procured me good wine, but conversed with liberality and good sense on most general topics. I asked his opinion of the respective merits of the two governments under which he had lived; he replied by successively marking off the length of a palm and cubit on his right arm. "The oppressions of the Portuguese Government," said he, "are so much, the Spanish are so much." He was a Portuguese; a Spaniard would probably have applied his mensuration contrariwise. . . . While we were at Olivença, and the siege was going briskly on, Marshal Soult broke up from before Cadiz and advanced to Llerena, on the Estremaduran frontier, where he arrived on April 4th, for the purpose of disquieting Lord Wellington's operations.

This movement produced a corresponding one on our part. The cavalry marched to occupy the intermediate country betwixt Llerena and Badajoz. We quitted Olivença, and leaving Albuera on our left, came to Nogales, a village on a hill with

[1] A reference to the systematic disturbances made by the audience at Covent Garden during the "O.P. ('Old Prices') Riots," when Kemble raised the admission scale in 1809.

[2] This stamping at the end of the long Good Friday service, was supposed to symbolize the convulsions of Nature at the death of our Lord, the earthquake, etc.

[3] Captured by Soult January, 1811, recaptured by Beresford April, 1811, dismantled and evacuated in June of the same year, and never again occupied.

a small castle, whose vaulted galleries served part of the regiment for stabling. The next day we marched to Villalba, which we occupied together with Villa Franca and the neighbouring villages, having our advanced posts in the direction of Llerena. Villalba was but a village, yet it had an air of elegance which few towns in Portugal could aspire to. The square, in which stood the church, was surrounded by houses of a stately appearance. The inhabitants were collected in it to witness our arrival. The balconies were filled with ladies—not females by courtesy so denominated—but graceful forms round which (their) dark veils floated, with an air of dignity, or were occasionally thrown back revealing the glances of their darker eyes. One might understand, on seeing them, the passionate enthusiasm with which Spanish ladies have inspired both ancient knights and modern minstrels. They have the mien and step of queens, but of queens who rule with a sceptre of flowers.

Badajoz having been stormed by our army on April 7th, Marshal Soult, after a trifling affair of cavalry, in which he lost some horses and prisoners, retired to Seville, while we pursued our way back to Olivença, whence we marched to Elvas, through Badajoz. Badajoz was naturally an object of interest, and we took the opportunity of half an hour's halt, to walk through it. We entered by the bastion of St. Vincente, close to the Guadiana, which had been escaladed on the night of the assault by Major-General Walker. The bodies of two or three French soldiers were still lying in the ditch. Thence we crossed the town to visit the breaches in the bastions of La Trinidad and Santa Maria, where the assault was made. Their appearance readily explained why the gallant 4th and Light Divisions were repulsed in their attempt to mount them. After crossing the inundation of the Rivillas, and entering the ditch, they had to clamber up an almost perpendicular ascent formed of rubbish, in the face of a concentrated fire of grape, musketry, shells, grenades, and every species of destructive missile rained down upon them like burning hail, and had then to pass the breach defended by a Chevaux de Frise of sword blades, set round with bags of gunpowder, and undermined. Here they were to maintain themselves until they could receive support sufficient to resist the efforts of the whole garrison. In spite of these obstacles, a few brave men pushed on till they reached the summit, where their dead bodies bore noble witness to their courage. It may be imagined this spot presented a scene of considerable confusion: dismounted cannon, broken carriages, fragments of palisades, the sword-blades which had formed the Chevaux de Frise were scattered round the breaches, mixed with soldiers' caps, cartouche boxes and other fragments of their dress and arms. The rugs which the French sentries had put up to shelter themselves from our shot were still standing. Behind the breaches were the ruins of the church of the

Santissima Trinidad; part of the vaulted roof alone was distinguishable. There was no part of the devastation the Spanish ladies, whom I saw at Olivença, deplored so feelingly as that of this church "It was so holy a church," they said; but besieging armies have disregarded things far holier—witness the Acropolis and Tomb of Hadrian. From the breach we walked on towards the castle, which had been escaladed by Lieut.-General Picton, whose success was the decisive event of the attack. General Phillipon had apparently intended defending this post, after the breaches had been carried, since there was a battery of heavy cannon across the street leading to it. It is a very ancient building, commanding the whole town and works from its lofty square towers, which now looked black and desolate enough. The town was not greatly injured. The streets seemed clean. There were not many houses destroyed except in the immediate neighbourhood of the breaches, but they were all so bare, both of furniture and inhabitants, that the whole town reminded one of a carcass from which the entrails had been cleanly extracted. We crossed the Guadiana by a magnificent bridge within the works, attributed to the Romans, and taking the road to Elvas, forded the Caya, during which operation our doctor's mule fell, and all his cataplasms and pill boxes were scattered on the stream, while his servant stood up to his chin in water, vainly endeavouring to stay the havoc. From Elvas we once more traversed the Alemtejo, and crossing the Tagus at Villa Velha, bivouacked by the roadside in an olive grove alive with fleas. The next day we moved on towards Castello Branco.

While the siege of Badajoz was going on, Marmont, with a design to create a diversion, had advanced from Salamanca, blockaded Ciudad Rodrigo, and after vainly threatening Almeida, had entered the frontier of Beira, to the great alarm of all the doctors and commissaries, as far as Coimbra. Some of his cavalry pushed on towards Guarda and dispersed some Portuguese Militia, with little bloodshed, after which they approached Castello Branco, compelling the good bishop to a forced march over the mountains in a carriage drawn by two oxen, and obliging the commissariat to stave their wine casks and burn their stores; and this was the sum total of (the) diversion.

CHAPTER IX.

THE BATHS OF CALDAS.

At the village of Sarnadas, betwixt Castello Branco and Villa Velha, I quitted the regiment, for the purpose of trying the effect of the warm baths of Caldas, on a complaint in my thigh bone, upon which the whole *ars medica*, both of our regimental surgeon, and of the medical staff of Almeida, had been vainly exhausted. Turning from the main road with my equipage,

which consisted of three horses, a mule, a pony, a dragoon, and a Portuguese boy, I journeyed over a dreary tract of mountain country to the wretched hamlet of Perdigão, where, I had been told, there was an inn—and so there was, as a bough over the door of a dismal-looking hovel informed me. The principal apartment, lighted by the entrance, was the travellers' room, through which the cattle passed to a stable adjoining it. It contained a bench and table, and there was a fire on the clay floor, but of eatables I could hear nothing in the house, nothing in the village. This was indeed a desperate case, but the inhabitants lived, why then should I starve upon the same ground? With this reflection I walked through the village, till I came to a group of women squatted on the ground with their distaffs and knitting needles. To them I made my appeal, for pity dwells in female bosoms, and by working much on their compassion, but more on their interest through the intercession of a *crusado-novo*,[1] I procured the slaughter of an old hen, with a salad to boot, on which I contrived to sup without much repining, and as beds were unknown in this primitive hotel, I stretched my blankets on a kind of elevation, built up in one corner of the apartment, probably for the preservation of the family in the rainy season, when the dirt-floor would be deluged. I set out the next morning in company with a muleteer—whose mules I had engaged to lighten the load of my own animals over the stony mountains, and a Portuguese, who entertained me with the reception I should meet with at Macao, and the luxuries I should find at Abrantes, descanting "*con amore*" on the "*Ruma bom*" and "*Vinho engarrafado*" (good rum and bottled wine), to be purchased in the latter. We crossed a pleasant valley, watered by the Laca, over which we were ferried, a man and a beast at a time, in a crazy boat. All the rest of the journey lay through heath and gum cistus, pine woods and sand. Macao had, indeed, a pleasing appearance at a distance, as most Portuguese towns have from their whiteness, but I found nothing to admire on a nearer survey. As for quarters, I was first crammed into a little smoky parlour behind a doctor's shop, but upon my remonstrating against this indignity, as I represented it, I procured a billet on the Capitão Mor, or Commandant of the Militia of the district. This gentleman was from home when I came to his house, but arrived by the time I had established myself. He was a stout, vulgar-looking man, with a beard of a week's growth, and a large cocked hat stuck fiercely on his head. His very cloak was folded with an air of defiance, as he strutted angrily into the room, where he paced up and down, talked bigly to himself, and actually slavered at the mouth with indignation at being thus incommoded; but, perceiving that I kept my ground, seemingly very little affected by the howling

[1] A Portuguese silver coin worth about half a dollar.

of the tempest, he cooled down into tolerable civility, and we parted in the morning good friends enough.

Next day I reached Abrantes: this was a military position of considerable importance, while operations were carried on within the Lines, since it was both the key which locked up the Alemtejo from the French armies, and also held them in check on the Zezere, in consequence of which they were so straitened for provisions, as to be forced into a disastrous retreat. It was afterwards made into a principal depôt for sick, and in this occupation I found it. It stands on a very steep eminence above the Tagus, and is defended by ancient walls, which have been repaired and strengthened by barricades, and a variety of new works. In other respects it was filthy, crowded, and gloomy. I was, however, obliged to wait here until the Medical Board should hold a sitting, before whom I was to appear, very much "*in forma pauperis,*" to procure my certificate, and leave to visit Caldas. The first quarter assigned to me was well suited to an invalid, that is, to make one; it being half of a close dirty apartment, with a man dying of a fever in the adjoining room. I had taken possesson but a few minutes, when I found myself swarming with vermin. This was beyond my philosophy, my baggage was yet on my mule's back, so I again descended the hill, resolving rather to trust to accident for shelter than be thus delivered over to dirt and disease. About a mile from the town I found a quinta, or country house, standing in a kind of farm-yard, with a garden behind it. It looked, to be sure, in a dilapidated condition, but the air was fresh round it, and here I quartered myself in a decent room, containing a stool, a table, and a large chest, which served me for a bed. Here I passed nearly a fortnight in the very fulness of solitude, and so worn down with pain and opium, that it was not easy to determine whether mind or body were the more hobbling and debilitated. What an awakening from a dream of glory!

> "O, Octavian, where are now the joys
> Thy lusty youth had promised?"

In truth I was not in a much fairer way to become a hero than was Cardenio, *alias* Octavian himself, when he took to skipping among the mountains in ragged crimson velvet.[1] We are cruelly the sport of fortune, when a trifling disarrangement of the fine membrane which covers one of our bones,[2] shall blast a whole harvest of bright anticipations, and turn us down like disgraced schoolboys, from the lofty grades of military

[1] Cardenio is a lunatic lover in *Don Quixote*. Octavian is the hero of a play of the same name by Geo. Colman the younger, founded on Cervante's tale of Cardenio.

[2] (For this was my complaint—an enlargement of the periosteum, doctors call it).

"At length the Doctors sat in deep Divan."

enterprise, to plod over again the dull lesson of an obscure existence. The only incident which occurred in this tedious interval was a visit from my quondam host, the Capitão Mor of Macao. His oxen had been embargoed, and having come to Abrantes to procure their release, he nosed me out, and concluding I might have interest enough to assist him, came bowing to the ground with hat in hand, and imploring my lordship's intercession. With the best wishes I could have done nothing in his behalf, but I gratified my revenge by merely inciting his supplications without letting him know the extent of my inability.

I appeared before them with my testimonials of the various remedies by which I had not been cured, so they had no objection that hot bathing should be added to the number. It was a pity that in all the medical surveys I underwent, nobody should have thought of ascertaining my complaint, which being a pain in a limb, was very gratuitously put down to be a rheumatism, whereas, if the real nature of it had been guessed at, it would have been clear that par-boiling for half a century would have gone no way towards curing it. I gladly quitted Abrantes, though, at nightfall, and, having crossed the bridge of boats over the Zezere at Punhete, arrived before midnight at Tancos, where my servants were already established in a decent quarter. Tancos consists of little more than a row of white houses on the edge of the Tagus, but there is a cheerfulness about the place, which an open site, and the vicinity of a fine view, always conveys in bright weather. The Tagus scenery, too, as well as its salmon, is always fine. A little above the village, in the middle of the river, are the ruins of a castle on a rock. I had once the curiosity to row to it with some brother officers; we found the rock covered with the prickly pear, and a long Latin inscription over the gateway: I forget its purport, but there was nothing interesting in it, nor is the edifice of great antiquity.

From Tancos I proceeded to Torres Novas (New Towers), where I was handsomely lodged, but scantily fed, though it is a decent town. The castle is used as a prison, and the walls are still in tolerable repair. This part of Portugal seems, indeed, bristling with feudal fortresses. There is even one at the little village of Alcanhede, my next day's stage, the old tower of which was a convenient landmark for me to steer by through the pine woods through which I had missed my road. When I entered the village, which exhibited evident traces of hostile devastation, I proceeded to the house of the Padré, which seemed to have been repaired, as the windows were freshly glazed, and the whole exterior looked clean and comfortable. I found the priest a good-humoured old man; he received me very civilly, but gave me a lamentable account of the present resources of the place, in which, he said, there was neithe:

cow, sheep, goat, pig or poultry left, so that nothing was to be purchased except bread made of milho or Indian corn, and wretched wine. I was sitting quietly down under these circumstances to what provisions I had brought with me, when a rabbit, very nicely stewed with rice, made its appearance. I was the more sensible to this attention because I had given no hint of my necessities, and the means, out of which the offering was made, were evidently small. After dinner, the old man recounted his losses to me, which he reckoned at £1,500, and as if it were not enough to have been robbed by the French, he complained he had been since cheated by our commissariat of 114 dollars, the price of two oxen, which a regiment of cavalry had taken and given him a receipt for, but after making repeated journeys to headquarters for payment, and being constantly sent from place to place on one pretext or another, he had made up his mind that it was cheapest to abide by the first loss. So he offered me his receipt for a trifle if I had been disposed to speculate on it. I had a few glasses of tolerable wine with me, over which, towards evening, he became so elevated and friendly that he actually proposed accompanying me on my journey to Caldas for the sake of companionship. He related with much glee a stratagem by which he had once kept the French out of the village, by parading a number of old cocked hats on poles along the battlements of the castle, and beating a march with a drum. The next morning I repaid his hospitality by a present of a little tea and mustard, the latter of which particularly pleased him, since, he observed, it would make a man eat whether he had an appetite or no, and he never dined at the eating houses of Lisbon without calling for it. In Alcanhede I observed the only palm tree I saw in Portugal. The French, who strangely mix taste and sensibility with their cruelties, were particularly careful it should receive no injury.

The next day brought me to Caldas, the Bath of Portugal. My reception, however, was not quite in the Bath fashion. I found the Juis de Fora resided at Obidos, but I was directed to his deputy, and after thumping some time at the door, his wife opened the lattice of an upper window with a shrill "*Quesci Ohi*?" (who's there), and on my telling her my business, she quietly answered her husband was from home, but if I would wait in the street half an hour he would return. Now, considering it rained hard, and I was already wet through, the demand was a modest one. I, however, took shelter in a shop, and when the magistrate's deputy at length returned, he quartered me in one of the lodging-houses in the square. These lodging-houses consist of a suite of little chambers or closets, plainly whitewashed, and furnished with a bed placed on wooden tressels, a chair and a table. There is, besides, a sala or sitting-room in front of the house, of an appearance nearly as simple as the chambers, and a small kitchen with a

stove for burning charcoal. The Portuguese care very little for the comforts of a house. Their fine climate permits them to pass much of their time in the open air, lounging in the Praça, or about a coffee-house, with a cigar in their mouths. Within doors they have little to do but to sleep and eat, the latter of which operations is a matter of very little research or refinement, and, consequently needs but little domestic apparatus. The hospital and mineral baths of Caldas were founded and erected by Leonora, Queen of João II., in 1488. The building consists of a neat entrance hall, in the middle of which there is a spring, where an attendant waits with drinking glasses, to present you with a dose, strongly resembling, both in smell and taste, a concoction of rotten eggs. In the evening this hall becomes the general promenade, in which the company assemble as they meet in the pump room of Bath, to lounge, gossip, and kill time. The wards of the hospital branch off from this central apartment. The establishment is open gratis to the poor, whose complaints require the aid of the waters. It contains a pharmacopœia, and seems kept in the neatest order.

A passage from the hall leads to the baths, or rather, bath, for there is but one, about 30 feet long, and half as wide, from a corner of which the spring bubbles up through fine sand. It is strongly impregnated with sulphur, so that metal becomes black when exposed to its vapour, but I should not suppose the temperature exceeds 75°. After passing out of the building, it turns a mill and forms a bath for cattle. A natural consequence of there being but one bath is, that thirty or forty diseased carcases are stewed at the same time; a process not pleasing to the imagination. The poor bathe during the night; it is then open to the public. I avoided this by going at an early hour. There is a small dressing room adjoining, where I found a respectable man in attendance with clean towels, etc., whose business it is to rub you down on coming out. Adjoining the hospital are public walks and gardens, which, if not very tastefully disposed, afford at least pleasing shade and verdure. The neighbourhood of Caldas is flat and sandy, but the fences look all bristling with aloes, many of them in flower. I am surprised no speculating botanist ever thought of importing them in this state. They would easily outlive a fortnight's voyage, and Englishmen would thus be enabled more frequently to enjoy this centennial luxury. I had occasion, soon after my arrival at Caldas, to visit the Juis de Fora, who, as I have observed, lived at Obidos, whither I went in search of him. He was from home, but I found his deputy, who proved an excellent specimen of the weakest part of the Portuguese character; he overwhelmed me with expressions of regard and respect; showered on me titles of nobility, and ended by protesting his inability to be of any use to me. His principal, with whom I afterwards became acquainted, was a very different being. He was a man of gentlemanly manners and appearance, spoke French, and was a disciple of Voltaire.

In peaceable times the resort of company to Caldas was considerable. The Court was not infrequently held there, and there used to be an Italian Opera, but now the visitors were chiefly the old and infirm, who came simply for the benefit of the waters. There was, indeed, one lady of quality, who seemed to have come for amusement, and who frequently amused me by the *cortège* with which she took the field for her evening's ride. There were not less than a dozen horses, mules, and donkeys saddled for the occasion. All her waiting-maids were in requisition, besides her males, attending at the head of whom was a lounging major-domo, or species of esquire, with a tremendous cocked hat. I observed one day to my barber, that I thought such lumber were best with the army. "Ah sir," said he, "but they leave such as these, and take the man who makes bread."

Obidos is an old Moorish stronghold built on the steep banks of the Arnoya. The streets looked desolate, several of them being overgrown with grass, while the inhabitants, to judge from the stillness which I always found prevailing, were becoming homogeneous with the old battlements by which they were shut in, as it were, from the living world. The Lagoa di Obidos, an inlet of the sea, about six miles from Caldas, was one of my few excursions. It is a pleasing scene. The lofty cliff is broken through by a passage, seemingly not more than 30 feet wide, which opens into a lake or basin, forming a harbour for fishing-boats and small craft. The Berlings[1] are seen in perspective through the aperture. The little village of Conega lies near it, and a boat-builder's, close to the water's edge, enlivened the picture. I believe there are few other spots in the vicinity of Caldas worth visiting, except, indeed, a convent of Franciscans, in whose garden there are some fine plane-trees. One of the order came in with his fowling-piece, while I was there, and I fancied was not quite pleased to be thus caught "en deshabille" by a heretic. "You shoot then, father?" said I. "We must do something," was his natural reply. Alcobaca[2] is within a ride of Caldas, but the spirit of enterprise was fast boiling out of me, before my furlough expired, and I found myself daily growing earthward.

CHAPTER X.

MAFRA AND CINTRA.

Having quitted Caldas, I rode through Obidos towards Torres Vedras, in the company of a young Portuguese commissary. When we had got about half-way, we overtook an old

[1] Las Berlengas are rocky isles, with a lighthouse, five miles out at sea.

[2] One of the two great abbeys containing tombs of the earlier Portuguese kings; very picturesque, but not so much so as its rival the abbey of Batalha.

gentleman, mounted on a mule, who seemed to be just setting out on a journey, for he took off his hat before we came up, and began a long prayer to St. Antonio, as he said was always his custom when travelling.

The approach to Torres Vedras is picturesque in the extreme. A paved road, formerly planted with trees, passes between two towering eminences, each of which is crowned by a strong redoubt, commanding the pass; it then crosses the Sizandro by a long stone bridge, beyond which, as it were at the bottom of the scene, a lofty hill rises in the shape of a sugar-loaf, crowned with the ruined walls and towers of the ancient castle, from which the town is named, Torres Vedras—old towers. These battlements, after having mouldered for ages, were now again mounted with artillery, which completely commanded the road. The town, which seems clustering round the bottom of the hill, is dirty and uninteresting enough, but I met with a hospitable reception from an officer of our Commissariat, who rode with me the next day to Mafra.

Mafra is the Escurial of Portugal, a convent and a palace united. The village is mean and insignificant. The surrounding country austere and wild in feature, so that the edifice rises up with single majesty as the sun in a hazy atmosphere. Its extent may be judged of by considering that besides the royal apartments, it accommodated 300 monks, and now 5,000 Portuguese soldiers, still leaving room for many of its original inhabitants. The front is approached by gradual flights of stone steps, which one might mount on horseback, to a broad terrace, forming, as it were, the basement story of the edifice. The wings terminate in square, and somewhat heavy, towers; but the centre, in which is the church, is surmounted by a graceful dome. The entrance is by a corridor adorned with colossal statues of saints and martyrs in white marble—executed in Italy. St. Sebastian, pierced with arrows, is among them. The church may justly be styled superb. The walls are completely encrusted with marbles of various colours. The altar-pieces are of alabaster, without any mixture of the frippery usually seen in Portuguese churches, and there are eight large organs. I did not hear them, but the voice of a single officiating priest rolled like thunder round the vaulted roofs. Mafra was the family residence of the Prince Regent, who spent his days in processions and psalm-singing, and his nights in debaucheries too odious to be named. The expenses of his table, for he was a great glutton, were reckoned at £300,000 per annum. He was not delicate in his feeding, but usually gnawed off the breasts of half-a-dozen fowls, and flung their remains on the table. It may be conjectured he was withal extremely pious, for he had an army of 80,000 monks to 10,000 soldiers. His reign was the Friars' Millennium.

I one day met a Franciscan with his panniers and donkey, who begged of me; I gave him a trifle for an excuse to talk

with him. "Yours is a good trade, Father," said I before we parted. "Ah, it was once!" he rejoined, with a sigh, "but yours has spoiled it." It mends again now, I suppose.

By the time I had arrived in Cintra, and was satisfactorily established in Mrs. Davy's hotel, on the ascent of a hill, which looked like an entrance into Paradise, I discovered I had lost my portefeuille and writing-case, containing my notes, journal, money, and, in some sense of the word, everything I had most valuable in the world. There was nothing to do but to go back and seek it, which I did the next morning, proclaiming throughout Mafra, not only an adequate reward, but silence, secrecy, and impunities and immunities of every description, in vain. Alas! the place contained too many priests and soldiers to produce so much as a conscientious thief; so, slowly and sullenly, I turned my horse's head back to Cintra.

The town of Cintra contains a palace, built in the very worst taste. The ceiling of one of the apartments is covered with figures of magpies. In one of the courts there is a kind of grotto of Dutch tiles and pebbles, from the walls of which, on a signal being given, water unexpectedly spouts out, to the imminent danger of the unwary, who may be incautiously standing within its reach. It was, I was told, a favourite joke of the Prince Regent, to decoy Embassadors, or other strangers of distinction, within the sphere of its action. Cintra itself stands at the base of a sierra or mountain ridge, which sweeps in a bold line of rocky pinnacles towards the ocean. It is built of white stone, and has a clean, cheerful appearance. The slope of the ridge is one verdant, waving bower of fragrance and blossoms, enbosoming a romantic succession of seats and palaces, nearly as far as Collares. The most conspicuous among them is that of the Marquis of Manaloa. It consists of two wings in the Italian style, intended to be connected by a triumphal arch. The interior is fitted up on a style of superb elegance, even the door and window-frames having been brought from England. The lawn before the house, is surrounded by a luxuriant hedge of geraniums, glowing with the brightest hues. I know of nothing more apt to strike a stranger's eyes than this profusion of—to us—tender exotics springing in wild abundance. Nature seems to grow richer as she approaches the south, and to throw from her lap, with a gracious prodigality, those blooming treasures we denizens of the north may be said rather to admire than to enjoy. After drinking the pure perfumed air of the valley, and listening to the silver springs and streams which came hissing or dashing down its side from the crevices of the rocks above, I prepared to ascend the ridge, and visit the house of "Our Lady of the Rock." Jackasses are always in readiness for this purpose, and practised as they are, they seem to strive with difficulty up the narrow rocky path leading to the mountain pinnacle on which the convent stands. All here was bleak barrenness, strikingly contrasting with the soft verdure of the

valley. Even the climate was changed. The wind whistled chillily round the decayed porch of the building, whose dark walls, and mossy towers, seem coeval with the rocks that supported them. The tempests of three hundred years had impressed on them a character of antiquity suitable to their wild, melancholy situation. I looked towards the sea. Its roaring was distinctly audible, and I could observe the broad Tagus pouring into its bosom, but its surface was shrouded in heavy clouds, the white foam of the breakers was alone visible, glimmering like the partial lights which streak the expanse of futurity.

The chapel was small and simple. The altar was decorated with sculptures in alabaster, which an old monk, the single tenant of the pile lighted up with a candle to show them to their best advantage. I had observed he had substituted the pale flowers of the mountain for the roses and carnations with which the Roman Catholic churches are usually decorated. They seemed the offerings of age and sorrow. Having surveyed the chapel, he tottered before me through the sacristy, into the narrow Gothic cloister, to point out whatever he deemed worth seeing in the building. He paused by the way to tell me his own history. He was 70 years of age, and had been 50 years in the convent, having fled from the world at the period of the great earthquake of Lisbon.

I shall not easily forget him as he stood before me in the white habit of his order (St. Jeronymo), bending feebly on his staff, and placidly narrating the recent misfortunes by which his brethren had been dispersed, his convent plundered, and himself reduced to beggary; yet he uttered no reproach, and expressed no discontent. Why, indeed, should he? Betwixt him and the dead beneath his feet the interval was so brief, the transition so insensible, that how the one should be spent or the other accelerated, must have been a matter of little interest. It was for his auditor, who was yet to sweat many lustres, perchance, beneath the weary load of existence, to be disquieted at its burdens, and sicken at its crosses. On our return through the chapel he pointed out a picture he had dedicated to his patron Saint, for having once, when a shutter of one of the windows fell, suffered him to escape with a severe broken head. To have escaped altogether would certainly have been a greater favour, and yet, perhaps, have excited less gratitude. I regretted I was too poor to make him a trifling recompense for his attentions, but I must do him the justice to say he had not the air of expecting one. We parted, and I descended the mountain, but like certain pilgrims, who, when they have once looked upon the tomb of Mahomet, close their eyes, and esteem nothing else on earth worth beholding; so can I remember nothing worthy of being recalled after Cintra.

THE END.

THE GERMAN MERCANTILE MARINE IN 1911.

Translated from *Nauticus*, 1912.

INTERNATIONAL ECONOMIC POSITION.—Merchant shipping and international economy are two inseparable ideas standing in close mutual relationship. The history of the one cannot be written without following the course of development of the other and without submitting, at least to a general consideration, the fundamental connection, the harmonious working of their individual domains. The course of merchant shipping is the mirror of the general drift of international economy; its fluctuations can be read on the barometer of the economic position. Since its extraordinarily low level in 1908 this barometer has shown a steadily rising tendency, free both from disturbing influences and rapid rises—an infallible sign to the weather-wise of a fairly settled state of the atmosphere. The preceding dull years of depression have left behind a wholesome lesson, which has been taken to heart by the economic world. It has been exempt from excesses, reckless speculation and foolhardy undertakings, and its upward movement has progressed on cautious lines. The difficulties and complexities of political events, by which the latter half of last year was particularly overshadowed, certainly enjoined prudence. Although the actual damage resulting to international trade from the revolution in China, the Russo-Persian conflict, and the Turco-Italian War, has fortunately been restricted to moderate dimensions, yet the uncertainty ensuing has not been without a restraining and crippling effect on business enterprise. The effect of one phase of the Morocco crisis has been discussed in another part of this book. In addition to this, unrest prevailed in the commercial world due to strikes among the workers; from this it is true Germany was exempt, but Belgium and France and especially England suffered. There is no doubt that the hot and dry summer of the preceding year also exercised an unfavourable effect on economic development, because in the first place the continuous drought caused a lack of water which greatly hindered business activity in inland navigation, and was, besides, the cause of bad harvests in various agricultural products necessary for food for people and cattle, accompanied by a rise in prices and an increase in the cost of living. The disadvantages of this state of affairs were more or less felt in the domain of production, but the general purchasing power, increased and strengthened by good harvests in many parts of the world, and by advantageous market prices of commodities,

was not injuriously affected. In countries like the United States of America, which had thoroughly satisfactory harvests last year, and especially an unusually large cotton crop, Argentina, whose export of wheat and oats increased considerably compared with the previous year, Australia with its good wheat harvest, Brazil which obtained a high price for its coffee, and Chile whose saltpetre enjoyed an increasing demand, it could not be otherwise than that in such favourable economic conditions the purchasing power of the people should increase and enable them to purchase more foreign manufactured articles. This is especially true of Canada and Australia, whose economic development steadily advanced. On the other hand, an increased demand was evinced in European markets for foreign raw materials for manufacture, and in food stuffs, consequent on poor harvests in some parts, especially in France, so that all the preliminary conditions existed for a heavy import and export trade. Moreover, emigration to Canada, Australia and South America was comparatively large, and this, on its side, contributed to an increase in the products of these countries. The heavy demand for coal, occasioned by the Turco-Italian War, was another factor in favour of export trade, which also increased in extent compared with the previous year. However, imports were not much behind.

Increase in the Transport of Goods.—As regards German trade, the transport of goods according to foreign trade statistics shows an increase in value of 8.4 per cent. in exports and 8.6 per cent. in imports, compared with the previous year. From the following comparison of the figures for foreign trade of the three principal competitors in the markets of the world, it is seen that Germany came off very well last year. The total turnover in the transport of goods of the three foremost countries, *viz.*, Germany, Great Britain, and the United States, amounted in millions of marks to:—

	Germany.	Great Britain.	United States of America.
1911	17,808	21,055	15,263
1910	16,409	20,500	14,416

Improvement in the Labour Market.—The increase in the transport of goods could not fail to affect the position of the labour market, which, with regard to the degree of employment in manufacturing industries, also exhibited an upward tendency. The total number of workers amounted on January 1st, 1911, to 4,938,412, against 4,691,397 in 1910 and 4,465,644 in 1909.

Increase in Sea-borne Trade.—Sea-borne trade in particular received a great impetus from the boom in trade which was universal last year, and the year can be looked back upon as

one of great activity and profit. So far as extent of traffic is concerned, British shipping was less favourably affected. Incoming traffic in British ports only increased from 41,618,665 net registered tons to 41,943,559. The reason for this comparatively small addition of 0·8 per cent. is to be found in the serious disturbances which were occasioned last year throughout the British commercial world by strikes. Traffic in Continental ports last year showed unequal advances, especially in German ports, as can be seen from the following figures:—

Traffic (inwards)	1911 N. R. T.	1910 N. R. T.	Increase per cent.
Hamburg	13,176,000	12,656,000	4.1
Bremen	3,903,747	3,468,657	12.5
Stettin	2,376,619	1,976,419	20.0
Emden	1,286.624	1,218,338	5.6
Lubeck	869,741	834,923	4.2
Antwerp	11,346,535	10,761,070	5.5
Rotterdam	11,267,995	10,876,507	3.6
Amsterdam	3,570,151	3,556,320	0.4

All the Continental ports mentioned above show an increase in trade. Stettin comes first with an increase of 20 per cent., caused partly by the obstruction to navigation on the Elbe on account of scarcity of water, and partly, by improvement in the Baltic trade. During last year, Bremen also did very well compared with Hamburg, and, among extra-German ports, Antwerp shows the greatest increase in traffic; while Amsterdam stands far and away last among Continental ports as regards development of trade.

INCREASE IN TRAFFIC IN THE KAISER WILHELM CANAL.—The vast accumulation of shipping observed outside the Kaiser Wilhelm Canal, especially towards the end of the year, caused by the enormous pressure of traffic, points to extraordinary activity in the transport of goods. Fuller details as to the canal traffic are given in Part III. of this book.

INCREASED NUMBERS OF DOCK LABOURERS AND SAILORS.—The natural result of this increased harbour traffic was a correspondingly increased demand for hands, as is proved by the statistics of the labour registry for dock labourers and the sailors' bureaus at the ports. According to a statement of the Hamburg Port Workers' Union as to the degree of employment in the port of Hamburg, the following was the average number of workers employed daily:—Stevedores: 4,519 (previous year, 4,103). Dock labourers: 5,552 (previous year, 4,881). Thus, employment among stevedores has increased by about ten per cent., and among dock labourers by 14 per cent.

According to the statistics of the sailors' bureaus of Hamburg and Bremen, the following numbers were signed on and paid off:—

	Ships.	Previous Year.	Crews.	Previous year.
In Hamburg ..	6,703	6,563	131,295	129,820
In Bremen (including Bremerhaven & Vegesack)	3,999	3,876	63,945	62,526

SHIPBUILDING.

In the general development of trade and commercial activity which took place last year as outlined above, shipbuilding came in for a special share. It belongs indeed to one of those branches of industry, which, so far as the extent of employment is concerned, can look back on a record year of business activity. This being the case, the building policy of the shipping companies has moved on very moderate lines, and has kept pace cautiously with commercial development, as will be shown later in the comparison between the ships' bottoms at disposal and the demand for freight.

A glance at the statistics of shipbuilding shows that it again experienced an increase last year so far as tonnage launched is concerned, although the world's total production for 1911 did not quite equal that of the record year 1906. However, the course of shipbuilding as shown by the figures for the last few years does not exactly indicate any wonderful activity in 1911. Moreover, the deductions caused by total loss and condemnation kept fairly even pace with the total additions to the world's tonnage; so that the actual strength of the world's shipping did not increase disproportionately last year. The following table illustrates the activity in the shipbuilding industry of the world, and in British and German shipbuilding, as well as deductions caused by total loss and condemnation:—

	World's total tonnage launched. Gross Registered Tons	Deduction caused by total loss, condemnation, &c. R.T.*	Launched in Great Britain. Gross R.T.	Launched in Germany. Gross R.T.
1902	2,502,755	706,690	1,427,558	213,961
1903	2,145,631	779,803	1,190,618	184,494
1904	1,987,935	738,145	1,205,162	202,197
1905	2,514,922	792,354	1,623,168	255,423
1906	2,919,763	816,922	1,828,343	318,230
1907	2,778,088	851,224	1,607,890	275,003
1908	1,833,286	809,292	929,669	207,777
1909	1,602,057	939,232	991,066	128,696
1910	1,957,853	947,690	1,143,169	159,303
1911	2,650,140	841,313	1,803,844	255,532

* Gross for steamships, net for sailing vessels.

If the total tonnage launched in the last five years be compared with that of the preceding five years, it appears that in spite of the steadily increasing commerce of the world, the building figures for the last five years are about 1,300,000 tons smaller than those of the preceding period. These figures, therefore, are a proof of the extremely prudent shipbuilding policy which helped to achieve economic success. In addition to the 255,532 gross registered tons of merchant shipping launched in Germany last year, about 30,000 tons were launched in foreign yards to German orders, so that the total tonnage completed for Germany last year amounts to about 285,000 tons. German shipping companies have to record losses of ships to the amount of about 190,000 gross registered tons. The addition to the mercantile marine therefore amounts to about 95,000 gross registered tons. German shipping companies, however, report an addition of about 400,000 gross registered tons. Some 115,000 tons have therefore been acquired by purchase.

This numerical illustration of the development of the German shipbuilding industry would be incomplete, if only the tonnage launched for German account, or the net increase in the German mercantile marine by new construction delivered, were to be taken into account. A correct estimate of the building activity of German shipyards and the sound position of German shipping companies can only be made by taking into consideration the fact that, besides the above-mentioned tonnage actually delivered, there were at the end of 1911, according to the statement of the Germanische Lloyd, 483,978 gross registered tons of merchant shipping under construction as compared with 262,756 gross registered tons at the end of the record building year of 1907.

SUPPLY AND DEMAND.—It was hardly likely that this considerable amount of tonnage under construction would be entirely delivered by the end of the year, but there could be no doubt that the increase by new construction would be greater in 1912 than in the preceding year. However, this is not to say that the increase would exceed the demand; on the contrary, everything pointed to a still further development in 1912 in the world's commerce and consequently to an increasing demand for ships. Whether the comparatively trifling increase in carrying capacity in 1911 can be attributed to the delay in the delivery of ships due to strikes in British and German shipyards in 1910, as well as to a conservative shipbuilding policy, it is at all events a fact that the ships available always lagged a certain distance behind the increase in trade, and that in this steady proportion is to be found one of the essential factors contributing to the improvement in the business position. As the year progressed, the demand for ships' bottoms, both for import and export trade, increased to such a degree that not

only was the available carrying capacity fully taken up, but at times even, a scarcity of accommodation was experienced by the principal markets. Such a disproportion, however, between supply and demand could only result in a strengthening of the position of the shipping companies and concessions from the consignors, securing large profits to shipowners.

TRAMP SHIPPING.

These favourable circumstances were of special advantage to tramp shipping companies engaged in the open market, giving them an opportunity of making up for the unfavourable business of the last few years. They had good continuous employment, not only on the great Trans-Atlantic routes, but also in the Baltic and North Sea, and obtained average rates which brought in very good net profits, notwithstanding increased working expenses caused, in the first place, by the enormous volume of traffic, and the accompanying unavoidable congestion, and further by increased wages and insurance premiums, the rise in price of bunker coals, and the labour unrest in different branches of shipping. Another favourable circumstance was that the shipping lines, especially towards the end of the year, were obliged, on account of the extraordinarily heavy goods traffic, to take up vessels on an extensive scale by time-charter, for which the tramp owners received very high rates.

TRAFFIC OUTWARDS.—In traffic outwards, tramp shipping found lucrative employment, especially in conveying coal from England, the export amounting to about one million tons more than in the previous year. The freights on coal to Mediterranean ports, as well as to La Plata, the west coast of South America, and the East, in coasting voyages as well as in short voyages, considerably increased in the course of the year—in some cases from 70 to 90 per cent. The Turco-Italian War caused Italy to make considerable purchases of coal in England, for the conveyance of which a good deal of tonnage was required. But, in additon, a brisk business was done with the other coal-exporting countries, so that the available tonnage was often not sufficient to meet requirements, and consequently freights steadily rose. One result of this favourable state of affairs was that owners engaged in the Mediterranean trade were in a position to allow their vessels to return in ballast when lucrative return cargoes were not available, instead of being obliged to take up unremunerative ore cargoes. At the beginning of July, it is true, the coal trade was temporarily disorganized by the strike of seamen and dock labourers, and, later, by the railway strike in Great Britain; but it proceeded all the more vigorously in the months following.

RETURN TRAFFIC.—On the other hand, the La Plata trade disappointed the tramp shipping companies as regards homeward traffic, particularly on account of the complete failure of

the maize harvest, so that the ships discharging there found themselves compelled to look out for other markets for return freights. Fortunately, circumstances were so far favourable to them that India, Australia and the United States required considerable tonnage for the shipment of their harvests and raw produce. A particularly good cotton harvest in the United States did not fail to attract ships in ballast from La Plata, and gave remunerative employment to tramp shipping. This does not apply to the same extent to the Black Sea trade, which never reached more than a moderate average either in value or volume of business, this being caused by a partial failure of the harvest in conjunction with unfavourable weather during the first months of the year, and a lack of ready cargoes in the summer months. It was not until the second half of the year, when the Turco-Italian War broke out, at the time of the shipment of the new harvest, that the market was able slowly to recover; as the ships engaged in carrying coal to the Mediterranean and discharging there, did not overwhelm it, but steamed in ballast either to India or homewards. In the Near and Far East also the markets were not uniform. While in the Indian ports business was fairly brisk throughout, it experienced a sharp set-back in the Siberian ports through the plague; and Australia too was rather backward during the first half of the year. However, even in the East, during the second half of the year, good harvest shipments, especially of jute, rice, etc., from Indian ports, soy from Siberian ports, and grain from Australian ports, brought lucrative employment to tramp shipping.

COASTING, NORTH SEA AND BALTIC TRADE.—The business success of the tramp shipping companies engaged in coasting and short distance voyages, especially to and from the Baltic and White Seas, is by no means behind the thoroughly successful total result of business on the long voyages. It is true that in this branch too, business proceeded at a fairly moderate rate during the first half of the year, attributable in the first place to a concerted procedure of the shipping companies caused by the Baltic and White Sea Conference, and to a cautious reserve in tendering their ships, and further to the somewhat late opening of the Baltic ports to navigation. However, in the second part of the year, especially after the settlement of the labour strikes in Great Britain, such a tide in the Baltic trade set in till navigation was closed, as had not been experienced for years. Not only in a brisk coal export trade, but also in an unusually large volume of business in imported timber, the highest rates were obtained, which considerably exceeded the standard of the previous year.

The preceding observations on the successful business done by the tramp shipping companies are completed by the following

table, in which the highest and lowest freights of 1911 are compared with the corresponding rates for 1910:—

Outwards.

From	To	For	1911.		1910.	
			Highest rate.	Lowest rate.	Highest rate.	Lowest rate.
Tyne ...	Kronstadt ...	Coals ...	7/9	3/2	4/3	3/-
Wales ...	Barcelona ...	,, ...	11/6	6/9	8/3	6/4½
,, ...	Constantinople ...	,, ...	11/-	6/-	7/3	5/-
Wales or Tyne	Colombo	,, ...	13/-	8/9	11/-	7/6
,,	Genoa	,, ...	11/6	6/6	8/-	5/3
,,	Rio de Janeiro ...	,, ..	20/-	13/10½	17/6	12/6
,,	La Plata	,, ..	20/6	14/-	18/-	11/-

Homewards.

Australia ...	England or Continent ...	Grain ...	30/-	33/-	27/-	20/6
W. Coast of S. America	,, ...	Saltpetre ...	24/-	16/-	20/-	14/-
Vladivostok...	,, ...	Soy ..	35/-	24/3	30/6	23/-
Calcutta ...	,, ...	Jute, &c. (scale)	32/6	21/3	24/-	13/6
Azov	,, ...	Grain ...	15/6	7/3	14/-	7/-
Cronstadt ...	London	Deals per std.	37/-	27/6	32/6	21/-

FINANCIAL RESULTS.—If the differences in freights in the two years point to favourable business for the tramp shipping companies last year, their annual balances are the most reliable means of comparing their profits.

The following distributions were made:—

The Flensburg Schiffs-Parten Vereinigung A. G. of Flensburg, 15 per cent.; the Flensburg Steamship Company of Flensburg, 6 per cent. dividend—against a deficit of about £11,750 the previous year. Some of the steamers belonging to the Flensburg Shipping Company, "Heinrich Schmidt," paid dividends of 10, 11 and 13 per cent. The Horn Steamship Co., Lubeck, was able to distribute dividends of 5 per cent. (3 per cent. previous year). In the Hermann Kimme Co., one steamer made 10 per cent. and another 23 per cent. The Danzig Shipping Co., Ltd., which was unable to pay a dividend in 1910, paid 15 per cent. last year. The United Tug & Freight Shipping Co., Hamburg, paid a dividend of 8 per cent. (7 per cent. previous years), after placing a good sum to reserve. The Ocean Steamships, Ltd., Flensburg, after clearing off a deficit of about £3,850 and writing off £5,250, had £2,400 to distribute=4 per cent. dividend. The Flensburg Steamship Co. of 1869 increased its dividend from 3 per cent. in the previous year to 7 per cent.

STEAM SHIP LINES.

After these statements, no further proof is necessary that these shipping companies exclusively engaged in the conveyance of freight or goods had the best prospects of making profits. But among German shipping companies, besides those freight companies not working on definite routes, there is quite a number of lines which are solely freight carriers, and only differ from the tramp shipping companies in being employed on fixed routes. If some of these companies were unable to profit by the steadily rising tide of business last year to quite the same extent as the tramp ship companies, it was because they are frequently bound by strict contracts, which, of course, secure certain employment, but which restrict their freedom of movement, and prevent them from following up closely with their tariffs the rises in freights which occur at short intervals. Nevertheless, they too were able to make good profits from the favourable turn of the market which set in during the second half of the year, by raising their freights in accordance with the increase in traffic, as far as their contracts permitted.[1]

PASSENGER TRAFFIC.—The large lines, which are not exclusively freight carriers, have done equally well, so far as freight is concerned. In ordinary passenger and emigration traffic, on the other hand, the important North Atlantic lines have less favourable results to report. More than 300,000 fewer people emigrated in 1911 from Europe to the United States, while about 110,000 more people returned. About 15,000 people more than in the preceding year emigrated to Canadian ports, and about as many returned. It follows that beside a great decrease in emigration, there is an increase in the numbers returning, which, however, cannot nearly make up for the loss in emigration. The tabulated lists of emigration figures of the two German emigration ports of Hamburg and Bremen also show the falling off in emigration. According to them, in the year 1911 a total of 86,895 emigrants from Hamburg against 118,131 in 1910, and 113,535 in 1909; from Bremen in 1911 a total of 115,044 emigrants, against 157,896 in 1910 and 111,417 in 1909, left for the United States of America.

The *Hamburg-America Line* carried from Hamburg to New York in 75 voyages (against 86 voyages in 1910) 10,389 passengers (12,490 in 1910) 1st class; 21,030 (24,603) 2nd class, and steerage 53,858 (97,531), altogether 85,277 (134,624); from the Mediterranean to New York in 15 (17) voyages 924 (1,140) passengers 1st class; 2,873 (1,794) 2nd class, and steerage 8,312 (16,492), altogether 12,109 (19,426).

The *North German Lloyd* carried from Bremen to New York in 95 (101) voyages 14,898 (16,284) passengers 1st class; 23,472 (23,289) 2nd class, and steerage 51,799 (78,995), a total

[1] See Table in Part III., *Nauticus*, 1912.

of 90,169 (118,568); from the Mediterranean to New York in 25 (37) voyages 1,906 (3,542) 1st class; 4,960 (6,192) 2nd class, and 21,746 (32,522) steerage, a total of 28,612 (42,256). The reasons for this decrease in emigration, which also explain the increase in numbers returning, are to be found in the unsettled state of the internal politics and economic conditions of the United States of America, in the uncertainty as to the future tariff policy, the result of the Presidential election, and the fate of big enterprises in view of the breaking up of several important industrial trusts, already ordered by the courts, partly too in the stricter enforcement of the immigration laws.

Thanks to the unusually brisk and profitable goods traffic, the decrease in passenger traffic did not greatly affect the total profits of the two large German shipping companies, although the individual yields do not quite come up to those of the other shipping lines in which the passenger traffic is either behind the freight traffic in volume and importance, or plays a subordinate part. Where passenger traffic is concerned on these lines, however, this branch of business was satisfactory on the South American route, especially on the return journey, and also on the routes to Australia and Africa.

Business Position and Returns.

Hamburg-America Line.—By the way in which the fleet of the Hamburg-America Line is arranged as to class of ships, organization and distribution over the different routes, it was easily possible for this Company to make up for a trifling loss in passenger traffic on the North Atlantic route, by a profitable freight business on the North American route, as well as on their other routes. Thus, while their fast steamers for passenger traffic only did badly compared with the previous year, their ships for both passenger and freight transport have had better results in so far as the freight traffic outweighed the passenger traffic. The fact need not be further emphasized that the ships of the purely steamer class were the most profitable in 1911 on all the Company's routes where those ships are predominantly or exclusively employed. By all the Company's steam ships in the year under review, a total of 1,044 (1,030 in the previous year) round voyages were made, in which 365,393 (379,622) passengers of all classes, exclusive of excursionists to the sea-side, and 7,286,434 (6,446,369) tons of freight were carried. The total distance covered amounts to 8,150,000 (7,562,110) nautical miles or 15,093,800 (14,005,028) km., corresponding to 377 times (350) the circumference of the earth. The fleet of the Hamburg-America line is to be considerably enlarged. In addition to a fairly large number of vessels, the company has ordered two more quadruple-screw turbine steamers of some 50,000 gross registered tons of Blohm & Voss, Hamburg, of the same type as the "Imperator," recently built at the Vulcan Yard, Hamburg. There are, besides, ten more vessels under

construction—all at German yards—which will be engaged on the company's various routes, partly as passenger and cargo boats and partly as purely cargo vessels. Finally, orders have further been placed for two ships, which are to be specially constructed for the banana trade. Including these vessels under construction, the total gross tonnage of the company's fleet has increased from 1,023,315 to 1,210,717 registered tons, *i.e.*, by 187,402 registered tons, as compared with the preceding year. The sea-going fleet consists of 179 steamers, ten passenger steamers for service on the lower Elbe and to the watering places, seven sea-going tugs and eight sea-going lighters. To cover the cost of the extensive shipbuilding programme, the company proposed to increase the capital by about £1,250,000, bringing it up to about £7,500,000. After writing off sufficient amounts, the company was able to distribute a dividend of 9 per cent. against 8 per cent. in the preceding year.

North German Lloyd.—What has just been said as to the decline in passenger traffic of the Hamburg-America Line, applies equally, if not in a greater degree, to the North German Lloyd, in whose trade the passenger traffic to the United States of America plays an even more important part. However, the Bremen company—although within rather more moderate limits—has also been more than able to make up for the loss of several millions (marks) in passenger traffic by a corresponding increase in general freight and in the South American and Australian trade. In the past year the North German Lloyd conveyed—not including the traffic to the North Sea watering places—514,272 (562,608) passengers and 3,586,178 (3,316,633) tons of freight. The distances covered by the steamers of the fleet on some 940 voyages out and home amount to about 5,713,100 (6,821,750) nautical miles, or about 265 (316) times the circumference of the earth. The company has ordered four twin-screw steamers each of 8,500 gross registered tons, which are intended for cargo and passenger traffic to South America, and two steamers of about 11,000 tons carrying capacity fitted with cold storage for the Australian trade. Last year seven vessels of the fleet were sold. In order to bring the passenger accommodation up to date, the company has taken in hand and partly carried out extensive alterations in a number of its steamers. Among other things, large promenade decks have been constructed on several steamers on the New York-Mediterranean route, specially for the use of steerage passengers, and it is intended to extend to the whole fleet the arrangement already existing in some of the vessels of special 3rd-class cabin accommodation. The sea-going fleet of the North German Lloyd at present consists of 126 steamers with a total of 717,282 gross registered tons, and two training ships.

Hamburg South American Steam Navigation Company.—Measured by the amount of shipping, the Hamburg South American Steam Navigation Company takes second place among

the Hamburg lines. It is, first and foremost, a freight line, but is, besides, assiduously developing its passenger traffic also, which last year showed very satisfactory results on all the company's routes. A proof of this endeavour is the fact that besides the large new twin-screw passenger steamer "Cap Finisterre" (16,000 gross registered tons), commissioned at the end of the year, the largest vessel ever in the South American trade, the company has ordered four twin-screw freight and emigrant steam-ships, each of 12,000 gross registered tons, two of them to be placed in commission during 1912 and two in 1913. The sound financial position of the company is proved by the fact that it is in a position to procure from its own resources new construction to the extent of 67,000 gross registered tons, ordered during 1911 and at the beginning of 1912, and which, when completed, will bring the company's fleet up to a total of 285,000 gross registered tons. In the business year the steamers of the company have made 138 voyages against 132 in the preceding year on the trans-Atlantic route, and on the New York-Brazil and Patagonia route 48 voyages against 49. The good profits earned have enabled the company to distribute a dividend of 10 per cent as compared with 8 per cent. in 1910.

HANSA.—The German Steam Navigation Company Hansa of Bremen is exclusively a cargo line. Among the large shipping companies it is also the one which made most advance as regards dividend, paying 15 per cent. in the year under review as against 10 per cent. in the preceding year. In the former year four steamers were added to its fleet, and nine further vessels were ordered from various German yards. The intention of paying for all the new construction out of floating funds, obviously points to the sound financial position of this company. One of the new vessels of 2,500 tons was to be fitted experimentally with a Diesel motor. The company's fleet consists of 67 steamers (including new construction) of 338,589 gross registered tons (compared with 59 steamers of 293,268 gross registered tons), as well as two steam tugs and 16 lighters.

KOSMOS.—The German Steam Navigation Company Kosmos of Hamburg is for the most part a cargo line, and its passenger traffic takes a subordinate position. After ample provision for expenses and deductions, the company has been able to distribute a dividend of 12 per cent., being 2 per cent. more than the previous year. During the year reported on, its ships made 82 round voyages, of which 18 were to Chile, 32 to Peru, 12 to Ecuador, four to Central America, and 16 to California. To replace seven obsolete steamers, which have been sold, the company placed orders with German yards for five freight steamers, each of 12,000 tons (11,811 English) capacity; on their completion the fleet will number 33 steamers.

GERMAN-AUSTRALIAN STEAM NAVIGATION COMPANY.—The German-Australian Steam Navigation Company of Hamburg—

decidedly a cargo line—enjoyed a very active freight business on account of the strong economic development and good harvests of Australia. In anticipation of the increasing requirements, the company had already ordered a number of new boats in 1910, eight of which were ready for service in 1911, so that they were not dependent on expensive time-chartering to the same extent as other shipping companies. As this addition was not sufficient to cope with the traffic, the company ordered nine more steamers, one of 12,000 tons, the others of 9,000-10,000 tons capacity. Two of these were to be provided with cold storage for the transport of fresh fruit, meat, butter, etc. On their completion the company will have six steamers with cold storage at its disposal. At the end of the year the number of steamers in the company's service was 43, with a total of 199,797 gross registered tons, and a cargo capacity of about 325,000 tons. After prudently writing off certain amounts, the company distributed a dividend of 11 per cent. compared with 9 per cent. in 1911.

German East Africa Line.—The German East Africa Line carries passengers, as well as cargo, and during the year under review entered into keen competition with foreign steamship lines by starting a new mail steamer. The favourable effect of this innovation, and its special recognition by the travelling public, caused the company to place an order for a sister-ship to this steamer. As a set-off to this increase, however, two ships were sold, so that the number of ships in the fleet remains unchanged. For the year 1912 the company arranged a new time table, with increased sailings. The dividend remains the same as the preceding year, at 8 per cent.

German Levant Line.—There still remains to be briefly considered the work of the German Levant Line, more particularly as that company found itself again in the position, for the first time since its reconstruction, to pay a dividend, *viz.*, 6 per cent., after the shareholders had been obliged for eight years to do without interest on their capital, and had had to pass through very trying times. The company was able to distribute this dividend (a very favourable one in the circumstances), although out of a gross profit of £164,368, £104,014 were written off. The reserves amount to 23 per cent. of the share capital. The company ordered seven new vessels in 1911, which, however, on account of delay in delivery, could only contribute to a very small extent to the profits. In the previous year, two ships, each of 6,500 tons capacity, were ordered. Against the sale of two older ships is to be put the purchase of five or six steamers of a total capacity of 29,250 tons, which brought the fleet of the company up to 54 steamers with a total capacity of about 230,000 tons.

[Reference should be made to the tables in Part III. of *Nauticus*, to supplement the above general observations on the business and financial policy of the big steamship companies.]

Trade Routes.

NORTH AMERICAN ROUTE.—As regards the business position on the North American route, all that is necessary has already been said in the review of the two largest German shipping companies.

MEDITERRANEAN-GENOA TO NEW YORK.—Business in the Mediterranean has been very unfavourably affected, according to the reports of the North German Lloyd, by the fresh violent outbreak of cholera in many places, as well as by the Turco-Italian War. Passenger traffic in particular has suffered from the quarantine regulations set up in almost every port of the Mediterranean to keep out cholera. In the cargo traffic of the Genoa to New York Line, an increased demand for tonnage, especially incoming, was noticeable. On the other hand, the passenger traffic experienced a considerable set back, on account of the circumstances just mentioned, shown in a heavy decrease in cabin passengers in both directions and in Italian emigration to the United States of America. In the numbers of incoming steerage passengers a slight increase was noticeable, just as on the Bremen to New York lines, from which the company was able to make a profit, because some of the steamers on the American route of Italian nationality were used for the transport of troops to Tripoli. Traffic on the Alexandria lines, similarly to that of the Mediterranean-Levant, suffered from the prevalence of cholera.

WEST INDIAN AND MEXICAN ROUTE.—In the trade to the West Indies the favourable effect of the rise in the price of coffee on the purchasing power of the people, in spite of the harvest being only moderate, was further felt. Thus, on the Hamburg-America Line the outgoing traffic increased, while no progress can be reported in return traffic. In spite of the revolution which broke out in Mexico, there was no lack of cargoes for this company's ships employed on the Mexican route, but their profits suffered so much from extraordinarily low freight rates that results were far from satisfactory. The Cuba lines made somewhat better profits. In the Atlas service an important alteration has taken place; after the expiration of the agreement which the Hamburg-America Line made ten years ago with the United Fruit Company, in conjunction with which it carried bananas from the West Indies to New York in steamers specially built for the work, the Hamburg-America Line entered into a similar agreement for the same purpose with another company —the Atlantic Fruit Company. But as this Atlantic Fruit Company intends to convey bananas to Hamburg and other European ports in conjunction with the neighbouring Hamburg-Columbia Banana Co., Ltd., the Hamburg-America Line has also taken up this branch, and at the same time by financial co-operation with the banana company has secured a proportionate influence in the conduct of the trade.

EAST COAST OF SOUTH AMERICA.—In the annual reports on the trade with the east coast of South America, many complaints are to be found as to the inadequacy of harbour plant in many of the South American ports. In Buenos Aires especially this inadequacy has become a serious inconvenience to shipping. Matters are not much better at Rio de Janeiro, Pernambuco, Bahia, Rio Grande do Sul and Porto Alegre, so that in trading with these ports congestion in loading and unloading, loss of time and increased expenses were inevitable. In order to indemnify themselves against losses arising from these causes, the shipping companies have been compelled to raise freights to these ports. Apart from these local inconveniences, all the shipping companies engaged on these routes, *viz.*, the Hamburg-America Line, the Hamburg-South America Steam Navigation Company, the North German Lloyd and the German Steam Navigation Company Hansa, express themselves in their annual reports as very well satisfied with the export trade.

With the exception of North Brazil, the export trade to the east coast of South America was considerable, and freights could be kept at a satisfactory figure. On the other hand, the homeward traffic did not turn out so well. On account of the poor harvest in Argentina the export of maize was very limited. Besides the small demand for freight, the number of ships seeking cargoes was so large that freight rates were depressed, and full freights could only be obtained in quite exceptional cases, and a large number of ships were compelled to return in ballast, not only from Argentina, but from Brazil also. For here, too, the export of coffee and tobacco has further declined, and the cargoes carried have been unsatisfactory. The rubber imported from North Brazil has not made any further advance, so that at times a lack of freight has been very noticeable in the total homeward traffic. The Hamburg-South America Steam Navigation Company describes the passenger traffic as satisfactory on all routes, and the North German Lloyd had also a further improvement to report in cabin and steerage passenger traffic to South America. The New York-Brazil line, which up to the present has not done very well, improved last year. Of course, on this route the German lines have to reckon with the growing competition of the United States of America.

WEST COAST OF SOUTH AMERICA.—In the trade with the west coast of South America, in which the German Steam Navigation Company Kosmos works in conjunction with the Hamburg-America Line, the outgoing trade showed a considerable improvement on account of the transport of material for railways and for the erection of saltpetre works, but on the other hand, the export of merchandise did not greatly increase. Only during the last few months of 1911 exports increased on account of the intended increase in Customs duties in Chile. At all

events, the business of the Kosmos Line assumed such proportions that they were obliged not only to run special steamers, but also to introduce a third steamer per month in addition to their regular fortnightly service. The general economic position, according to the report of the Kosmos Line, was favourably affected last year by the better conditions obtaining in the saltpetre industry, as well as by activity in the building trade; the export of saltpetre, which increased considerably in the preceding year, still affords prospects of good employment for German shipping companies. The prospect of a favourable grain harvest also points to increased exports. Iron ores from Coquimbo are now new products for export to Europe, and from the large yields of these ores it is to be expected that with moderate freight rates the export trade will make good progress. Both the Hamburg-America Line and the Kosmos Line complain of the inadequacy of harbour plant at various places on the west coast. The coastal traffic between the ports on the west coast proved less profitable because freight rates were lowered by the competition of too many steamers. The export of tin from Bolivia was very satisfactory.

In consequence of strained political relations with neighbouring countries, neither the import nor export trade with Peru showed any special increase, and for the same reason imports into Ecuador have only slightly increased. In the trade with the ports on the west coast of Central America the competition of the railways crossing the Isthmus to the Atlantic side has again made itself felt, and these railways are supported by the improved service of the coastal lines. Freights in the outgoing trade to California and British Columbia declined because various lines have already started a service to these ports in view of the Panama Canal.

AFRICAN ROUTE.—Results on the African route, in which the four companies—the Hamburg-America Line, the Woermann Line, the German East Africa Line, and the Hamburg-Bremen-Africa Line—work together, are satisfactory. The Hamburg-America Line states that the total result is about equal to that of the previous year. As regards the East Africa Line, trade with Africa in general and with German East Africa in particular has made good strides, and the goods traffic (both imports and exports) has increased in volume. In the India-East Africa service also the company has to report a further increase in trade, and the ships employed in this service earned satisfactory profits. In view of the favourable prospects of an increase in trade promised by the unmistakable movement towards the opening up of the continent by railways, the German companies are considering the extension of their fleets and services on this route.

EAST ASIATIC ROUTE.—The East Asiatic trade, which has been enjoying an upward tendency since the conclusion of the

Russo-Japanese War and the opening of the Trans-Siberian railway, has been subject to many checks in the year under review owing to adverse local conditions. In the first place, the plague which broke out in the north of China diminished the export of soy, although it did not affect the trade of the country so injuriously as was feared. In addition, there were destructive floods, followed by famine, and the revolution which broke out in the second half of the year was particularly disturbing to trade, causing great uncertainty in all commercial matters. The Hamburg-America Line expects, however, that after the unrest has subsided the opening-up of the country will be expedited so long as it pleases the present rulers to maintain peace in the interior. The passenger traffic to East Asia by the Imperial Mail Steamers of the North German Lloyd was almost the same as in 1910. On the whole, the Hamburg-America Line's trade with Japan was very brisk and was favourably affected by that country's rich harvests. The company cordially welcomes the conclusion of a new commercial agreement between Germany and Japan, by which economic relations between the two countries are placed on a sounder footing. The Hamburg-America Line has reduced its Chinese coasting service, as it did not prove very profitable in the course of the year.

INDIAN ROUTE.—In trade with India, the agreement between the Hamburg-America Line and the German Steam Navigation Company Hansa, which took effect on January 1st, 1911, for the joint working of the East Asiatic and Indian Service, has proved advantageous to both companies, and the Hamburg-America Line made 12 voyages during the year under review, with good results. From their unusually high dividends it may be judged how particularly well the Hansa Company confines itself to the statement that their traffic on the Indian lines from Europe and America improved during the past year: for all that, they were not always able to fill their outgoing ships. On the other hand, cargoes on the return journey were always satisfactory, so that freights could be maintained at an advantageous figure. At all events, the total figures—which were, moreover, improved by the reduction of the Suez Canal dues—show that this company is doing a particularly brisk and profitable business, the most important part of which is its East Indian trade.

AUSTRALIAN ROUTE.—The progressive development of Australia culturally and economically again resulted in 1911 in very active trade. Good harvests increased the purchasing power of the country, and caused a brisk export trade. The efforts of the Government, which were directed to the extension of the Australian railways as well as to attracting workmen from abroad, increased imports to the country, so that both in outgoing and incoming traffic the German companies concerned were well employed, *viz.*, the German-Australian

Steamship Co., and the North German Lloyd. The German-Australian Line certainly reports that trade was very irregular, on account of scarcity of berths in many ports, of lack of sufficient means of conveyance inland, and of labour difficulties, so that at times the pressure could only be met by running special steamers, while, on the other hand, a great part of the cargo capacity of the ships could frequently not be utilized. The goods traffic of the mail steamers of the North German Lloyd increased still further, and the growing emigration to Australia caused the 3rd-class accommodation to be well taken up, so that the company was obliged to run a special steamer solely for emigrants and freight. At the same time, the 1st and 2nd-class passenger traffic was good, on account of the English Coronation festivities. On the other hand, working expenses in the Australian ports increased considerably, because of the continual rise in wages demanded by the dock labourers. The Australian Shipping Bill threatens the interests of the North German Lloyd. The company feared that if this Bill became law in the still severer form it assumed by an additional clause in the second reading, it would be excluded from the Australian coastal passenger service, which would then be reserved solely for British shipping companies, or those subsidized by Australia. The Lloyd has, therefore, with the support of the Bremen Chamber of Commerce, made renewed representations to the Imperial Government against this policy of Australia. The Imperial Mail Steamship Line from Australia to Japan has slowly developed on account of the increasing exportation of home produce from German New Guinea. Traffic on the Imperial Mail Steamship Line from Singapore to New Guinea has grown, principally on account of the heavy export of copra from German New Guinea; the profits were more satisfactory on all lines on the India-China service, on account of the favourable cargo business.

Community of Interests.

But if the German steamship companies have all cause to look back on the past business year with satisfaction, yet, on the other hand, this success did not come to them without effort on their part. In particular their attention was steadily directed to guarding their common interests and warding off hostile efforts. Among the most important of the measures with this object were the negotiations among the ship owners of the North Atlantic Steam Ship Union for the continuation of the pool agreement which expired in the first quarter of 1911. Tedious negotiations were necessary to secure the continuance of the pool. Possibly one of the special difficulties in the way of an understanding was the share demanded by the Canadian Pacific Railway Company, which appeared to the Continental lines to be too large; the slow progress of the negotiations indicated clearly enough, however, that the lines in the best

financial position did not attribute the same importance as formerly to this principle of union. The negotiations in March and the deliberations in July each only brought about a temporary adjustment for three months, which was finally replaced during the November session in London by a five years' agreement both for the North Atlantic and Mediterranean traffic. By this, the vexed question of apportionment was settled and several points at issue between the British and German lines were arranged.

Here let us briefly touch upon the case which the American Government brought against the Union of Steamship Lines, as being a violation of the provisions of the Anti-Trust Law, the so-called Sherman Act. The Union entered a protest against the charge of an infringement of this Act, but this was rejected by the American court. The action is still pending at the time of writing, and its result will be anxiously awaited.

Difficulties also arose in the lines of the so-called Peninsular-Brazil and La Plata pool, which are engaged in passenger traffic to Argentina and Brazil. Here, too, the subject of dispute was the amount of participation, the North German Lloyd claiming a larger share in this business in the session at Scheveningen in September, 1911, which was refused, however; so that a continuance of the pool on this route seems to be questionable. In this case, too, however, after a discussion had taken place between the heads of the two great German companies and unanimity on the points in dispute had been arrived at, an agreement was made up to the end of February, 1912, and it is to be hoped that the further negotiations will lead to a settlement.

COMPETITION AND SUBSIDIES.—The year 1911, like its predecessors, was not free from competitive wars, although, on account of the steady flow of business, these were perhaps not so severe as in previous years. In the La Plata trade, the competition of the Menzell Union with the pool companies was the cause of great loss to the former, amounting to £62,585 in the case of the Trans-Atlantic Shipping Company, Ltd., and made a thorough reconstruction necessary. In the same way the Royal Belgo-Argentine Company closed its business year with a loss of £34,465. Nevertheless, these unfortunate experiences have not checked the formation of fresh competitive enterprises on this route. During the year reported on, the German East Africa Line was also in keen competition with British shipping companies for the passenger traffic to East Africa.

The system of subsidizing shipping companies was carried on to a greater extent abroad during the year. This is dealt with more fully in an article elsewhere on "Foreign Mercantile Marine." It is unnecessary to explain more fully here that in the face of artificial support given to the mercantile marines of some countries, the position of a fleet like the German, which is as good as unsubsidized, continually becomes more difficult to maintain in the competition existing between nations engaged

in shipping. If German shipping has hitherto been successful in maintaining its position in the front rank, it owes it to its own energy and efficiency.

SAILING SHIPS.

In proportion to their numbers, sailing ships had an equal share with steamships in the good freight business done during 1911, and, like the latter, towards the end of the year they obtained rates such as they have not had to report for years. The reports of these sailing-ship companies which publish their annual accounts as limited companies, also express satisfaction and state that the volume of business showed an almost uninterruptedly rising tendency, both in import and export trade, that freight rates in outward traffic were considerably higher than at the corresponding period of the previous year, and that, especially homewards from Australia and the North Pacific, profits were made which must be described as very satisfactory. Shipping rates from the west coast of South America have not kept pace with the above, yet here, too, there has been a noticeable improvement since the beginning of the year. In exports of coals from Wales to La Plata, rates reached a height of 16/-, and to the west of South America 20/-, while homewards from the west coast freight rates were obtained for saltpetre as high as 22/6 (20/-), for corn from Australia 30/6 (27/-), and from the North Pacific 31/3 (28/-). If, in spite of this, the profits of the shipping companies were not considerably better than those of the preceding year, the reasons are to be found in the first place in the heavy working expenses, the high harbour charges, and increased wages to labourers, and, moreover, in the raising of the insurance premiums by the German and British insurance companies, for cargoes of sailing ships more than 15 years old, among which are to be found a large proportion of the ships engaged in the saltpetre trade.

However, the business position has still further improved to some extent in the new year; at the same time freight rates for sailing ships have also hardened, and as all signs at present point to a steadiness of the general economic barometer, 1912 promised to be a year of still further profits for sailing ships such as they have not experienced for a long time. The present favourable position has not failed to affect the British sailing ship companies too, as they have evidently again found better employment for their ships in profitable cargo trade than during the previous two years, when they threw them on the market in large numbers at low prices. At all events, the offers for sale from that source have considerably fallen off, and the prices for sailing ships have substantially increased, in accordance with the improved business conditions. These assuredly good prospects for sailing ships will, however, be unable to check their further decline. However long this high level in the shipping business may continue, it will scarcely be able to inspire the building of new sailing ships. A glance at statistics shows

that the numbers of sailing ships in the world declined still further during the year. A single exception is to be found in the Norwegian sailing fleet, which showed an increase, in contrast to the fleets of other nations. That this increase was not the result of new construction but of purchases of British ships does not alter the fact that Norway will be able to keep its sailing ships employed with some profit, at least with more profit and longer than other countries, because there the regulations are less severe, the insurance and social-political requirements less oppressive, wages lower, and articles of equipment cheaper. But here, too, sooner or later, the sailing vessel will finally succumb in the fight against the superior adversary, modern technical science; and the last evidences of a glorious past, conquered, will have to yield pride of place. Of course, it cannot at present be definitely predicted when the actual end of the large sailing vessel will come. But two other enemies that are preparing against it—the Panama Canal and the motor ship—will take care that the end does come.

Training of Crews.

There would be no need in truth to deplore a means of transport that has had its day and is naturally destined to go the way of all things temporal, if it were not that it possessed the valuable attribute of being a particularly good nursery for our rising generation of seamen. A school of this kind for the training of efficient seamen, whose importance for the mercantile marine as well as for the navy cannot be doubted, is indispensable, however, and its decline can only be followed with anxiety at a time when steam navigation is making still greater strides, the need of crews becoming greater, and complaints about the inefficiency of our deck hands can no longer be disregarded.

GERMAN TRAINING SHIP UNION.—In view of this, the efforts of the German Training Ship Union to meet the growing need for capable crews by giving boys a course of instruction in a training ship, is certainly to be heartily welcomed. Two years ago the Union entered upon this new branch of its work—which had been restricted at first rather to the training of future ships' officers—and placed about 100 boys, who wished to become either sailors, steersmen or boatswains in the steamers of the German mercantile marine, on board the training ship "Grossherzogin Elisabeth," and trained them free of charge both in the years 1910 and 1911. The Training Ship Union made the conditions for training an absolutely stainless record, an age of $14\frac{1}{2}$ to 17 years, and sound physique. As to the results of this training, which lasted each year from six to seven months, from April to October, it was possible, now that the Society had been at work for two years, to pronounce an opinion at least in so far as the attainments and capabilities of the trained boys on board the steamers are concerned. With a few isolated

exceptions, the shipping companies have expressed themselves favourably to the Union as to the boys, or more correctly ordinary seamen, placed with them, so from that it may be concluded that the Union provides a proper training. Whether the majority of these trained boys will be content with the callings marked out for them, and will not rather, on completing the legal time of service, try to attain to superior positions, is a question which it will only be possible to answer after the lapse of several more years. But if the majority should actually keep to positions up to petty officer, this system of training would form a groundwork which would be capable of, and would require, further extension, especially as the number of trained boys is quite out of proportion to the numbers of inexperienced boys recruited every year for the steamships. The Training Ship Union seems to be already taking this fact into account, by its resolution to take ships' boys for the future in the spring as well as in the autumn, whereby the number of boys trained will be considerably increased.

GERMAN SHIP-BUILDING YARDS.

BUSINESS POSITION AND RETURNS.—In a retrospect of the economic development of the German mercantile marine, the German ship-building yards must not pass unnoticed, as they represent an important part of shipping. The brisk business done by the yards in 1911 has already been referred to and illustrated by figures. It may now be remarked supplementary that the shipping companies have supplied the yards with orders to such an extent as to fully occupy them, not only for 1912, but for part of 1913 as well. As to the extent of business in the individual yards during the year, their annual reports, so far as they have been published up to the present, show uninterrupted activity. The reports specify not only the ships delivered up to the end of the year, but also the ships, etc., still building. Some reports show that, on account of the prices received for ships, results are not quite so satisfactory as the amount of business might lead one to suppose. Building activity naturally led to an increased demand for workmen, whose average numbers, for example, in the yards of the "Weser" Co., Ltd., Bremen, rose from 2,750 workmen in 1910 to 3,847 in 1911, in the Bremen Vulcan Yard, Shipbuilding and Engine Factory, Vegesack, from 2,400 to 3,100. To meet the increased demands on their capacity, several yards have been obliged to enlarge and extend their plant, and the cost of these extensions, together with the necessity of a larger available working capital, occasioned by a considerable turnover, have made it necessary in some cases to increase the share capital. A general survey of the financial results of the German yards during the year appears elsewhere, in part III.

The year 1911 may be described as a landmark in the history of naval architecture, since a new period of development

in shipbuilding was entered upon with the commissioning of the first sea-going motor vessel.

In conclusion, as a praiseworthy example of German enterprise and courage, the fact, already touched upon elsewhere, deserves to be once more specially brought into prominence, that besides the gigantic steamship "Imperator," building in the Vulcan Yard at Hamburg, the leading German shipping company has ordered two more sister ships from the yard of Blohm & Voss, Hamburg. It may be taken as the best proof of the confidence that German shipping companies have in the efficiency of German shipbuilding yards that the Hamburg-America Line has entrusted these gigantic creations exclusively to German yards.

The following table, in which the output of the more important German shipbuilding yards is shown, confirms what has so far been said, and proves that the number of ships delivered during the year, as well as the number still being built at the end of the year, was almost without exception considerably greater than in the year 1910:—

German Ship-building in 1911 compared with 1910.

Name of Yard.	Ships delivered 1911		Ships delivered 1910		Under construction at end of 1911		Ships under construction at end of 1910	
	No.	G.R.T.	No.	G.R.T.	No.	G.R.T.	No.	G.R.T.
Vulcan Works, Stettin-Hamburg	8	8,040	12	18,600	18	133,000	8	10,840
Bloam & Voss, Hamburg	5	33,652	2	1,566	5	121,800	7	42,400
J. C. Tecklenborg, Ltd., Bremerhaven	7	40,053	4	21,635	18	123,153	6	32,600
Flensburg Ship-Building Company	10	42,906	12	26,140	11	66,770	10	41,670
Bremer Vulkan, Vegesack	13	56,700	6	22,500	10	55,500	14	67,325
Friedrich Krupp, Ltd., Germania Yard ...	16	18,170	9	24,365	20	77,750	—	—
Weser Company, Ltd., Bremen	9	34,218	6	3,960	12	56,240	9	13,582
F. Schichau, Danzig ...	—	10,297	—	11,567	—	63,700	—	59,371
Howaldt's Works, Kiel	21	59,020	15	3,732	17	31,800	—	—
Neptune Co., Ltd., Rostock	9	18,052	9	15,516	10	37,000	14	21,646
Henry Koch. Ltd., Lübeck	6	13,535	6	4,450	5	10,575	—	2,190
Reiherstieg Ship-building Yard, Hamburg ...	2	9,222	2	7,732	2	15,560	1	6,300
Rickmers Reismühlen, Shipping and Shipbuilding Co., Ltd., Bremerhaven	3	8,322	2	8,184	3	14,000	—	—
J. Frerichs & Co., Ltd., Einswarden	12	7,471	24	2,880	27	19,680	—	—
Stettin Oder Works, Ltd., Stettin	8	6,545	9	8,146	8	7,100	3	1,865
G. Seebeck, Ltd., Bremerhaven	11	5,275	4	765	14	10,430	—	—
Nüske & Co., Ltd., Stettin	8	2,520	2	5,000	9	1,795	4	1,035

If the difference between the number of ships delivered in 1911 and 1910 is less striking than the difference between the number of ships under construction, the reason is that the commissions for the ships delivered in 1911 were given in the duller business years 1910 and 1909, while the orders for the ships being built at the end of 1911 came for the most part in the good business year 1911, which not only stimulated the increase in fleets, but actually necessitated it. The same causes are again reflected in the following table, which shows that the numbers of ships of the individual shipping companies were not very much larger at the end of 1911 than at the end of 1910. But the difference will be disproportionately great between the numbers of ships in 1911 and those of 1912, and this difference will correspond to the larger number of ships still under construction at the end of 1911.

Alterations in the numbers of ships in the larger German Steamship Companies from the end of 1910 to the end of 1911.

Shipping Company.	Additions 1911		Deductions 1911.		No. of Ships.			
					End of 1911.		End of 1912.	
	No.	G.R.T.	No.	G.R.T.	No.	G.R.T.	No.	G.R.T.
Hamburg-America Company ...	14	78,913	9	42,801	—	1,160,424	388	1,021,963
North German Lloyd	5	5,102	8	21,796	422	739,740	425	755,660
German Steam N. Co. "Hansa"	5	29,300	1	3,457	58	289,873	54	264,030
Hamburg-South America Steamship Co.	1	14,503	1	352	44	221,859	—	207,356
German-Australian Steamship Co.	8	45,868	2	8,986	43	199,757	37	162,875
German Steamship Company "Kosmos"	—	—	5	18,303	30	153,324	35	171,627
German Levant Line	17	48,969	2	3,390	47	121,243	32	75,664
German East Africa Line	4	24,446	1	4,956	29	103,703	26	84,216
Woermann Line	3	9,220	1	344	34	98,134	32	89,258
German-American Petroleum Co., Hamburg	—	—	—	—	21	84,219	21	84,219
Westphalia Transport Co., Ltd., Dortmund	4	1,895	—	—	81	63,920	77	62,025
Roland Line, Ltd., Bremen ...	4	19,792	—	—	11	54,430	7	34,639
Steamship Company "Neptune"	4	2,641	1	641	74	52,514	71	50,514
Steamship Company "Argo" ...	1	3,220	—	—	29	47,688	28	44,468
Rickmers Reismühlen, Shipping and Shipbuilding Co., Ltd. ...	—	—	—	—	12	42,716	19	67,913
Hamburg-Bremen Africa Line Ltd.	3	8.706	1	2,538	14	39,238	12	33,070
Rob M. Sloman, Jnr.	4	6.577	6	12,400	17	36,470	19	42,293
W. Kunstmann, Stettin	2	3,614	1	149	15	34,937	14	31,472
Oldenburg-Portuguese S.S. Co., Oldenburg	4	7,075	1	495	20	32,209	17	25,629
Rickmers Siberian Line, Hamburg	2	8,268	—	—	8	31,426	—	—
New Steamship Company, Stettin	2	2,917	—	—	21	23,342	19	20,416
Flensburg Steamship Co., Flensburg	—	—	—	—	10	22,828	10	22,828
Continental S.S. Company Ltd., Hamburg	5	18,830	—	—	6	21,317	1	2,487
"Horn" Steamship Co., Ltd., Lubeck	—	—	1	2,028	9	21,272	10	23,300
A. Kirsten, Hamburg	3	3,179	4	3,582	21	20,601	22	21,004

As shown by the final table, the total number of ships belonging to the large German sailing ship companies specified shows a small increase over the previous year. This increase is, however, principally due to purchases, occasioned in the first place by a favourable opportunity for buying, and secondly by the prospect of good business; while only two sailing vessels (of the firm of Laeisz) are new constructions, which, as the last representatives of a vanishing type of ship, embody all the scientific inventions and arrangements for simplifying the working of the sailing ship and making it easier and more agreeable. It would be a mistake, nevertheless, to conclude from this small addition to the number of ships belonging to the larger companies, even should it remain unchanged during the current year, that there is any tendency towards an increase in the employment of sailing ships. A change will soon be apparent when the rising tide of commerce has reached its height and begins to decline.

Alteration in numbers of Ships of the larger German Sailing Ship Companies between end of 1910 and end of 1911.

Shipping Company.	Additions in 1911.		Deductions in 1911.		No. of Ships.			
					End of 1911.		End of 1910.	
	No.	G.R.T.	No.	G.R.T.	No.	G.R.T.	No.	G.R.T.
F. Laeisz, Hamburg	4	10,548	—	—	17	44,636	—	39,169
Shipping Co., Ltd., of 1896, Hamburg	—	—	3	4,781	21	44,376	24	49,157
Knohr & Burchard (Late), Hamburg	2	5,205	—	—	17	38,924	15	33,719
"Alster" Company Ltd., Hamburg	—	—	—	—	8	21,261	8	21,261
D. H. Watjen & Co., Bremen ...	1	1,434	1	1,270	9	19,571	9	19,408
G. J. H. Siemers & Co., Hamburg	—	—	1	3,076	6	17,853	7	20,929
Hans Heinrich Schmidt, Hamburg	—	—	1	1,515	8	17,090	9	18,605
"Visurgis" Steamship Co., Ltd. Bremen	—	—	1	1,685	7	14,011	8	15,696
Aug. Bolten, late William Millers, Hamburg	2	2,516	1	1,725	8	13,398	7	12,607
E. C. Schramm & Co., Bremen ...	2	6,219	—	—	4	12,530	2	6,311
Wachsmuth & Krogmann, Hamburg	—	—	—	—	8	11,710	7	11,558

THE ORGANIZATION OF THE ROYAL ENGINEERS AS SEEN FROM WITHIN.

By COLONEL W. BAKER BROWN, late R.E., Gold Medallist, R.U.S. Institution.

IN the April number of the *Army Review*, Lieut.-Colonel Maurice discusses, with an inherited facility of pen, and with conspicuous moderation, certain questions connected with that portion of the Corps of Royal Engineers which is detailed for duty with the Expeditionary Force.

I do not in any way wish to complain of criticism even when much less carefully expressed than in this article. Also I am entirely in agreement with Colonel Maurice in the end he evidently aims at—that the establishment, employment and training of the Engineers should be directed mainly to their work in war. At the same time, a careful study of his article confirms my first impression that he has underrated the efficiency of the present organization of the Royal Engineers, and is evidently imperfectly acquainted with the history of their growth and development.

This history is especially interesting, as, I suppose, no corps in the whole Army has been subjected throughout its development to so much criticism, and in no corps have so many experiments been made in conditions of service and organization. I think I may add, that no corps has been more consistently successful in meeting the requirements of the Army, and in adapting itself to changes of military thought and practice. As the views of Colonel Maurice no doubt reflect those of at least a section of the General Staff, and as they have been published in the *Army Review*, it is a matter of some importance that the other side of the question should be discussed in a similar manner. Reforms in the organization of the Royal Engineers may be necessary, but they should be based on an accurate appreciation of the existing conditions.

As an example of what I have referred to as imperfect knowledge, take the case of our signal units—formerly telegraph companies.

I do not know how Colonel Maurice imagines they are at present organized, but he describes among his suggested *remedies* his ideal method of organization as:—"To form permanent cadres for these technical units, and to fill the cadres on mobilization from those whose civilian occupations give

them the technical training we require. To be certain of obtaining these men when and where we want them, they must be enlisted on what is known as a special reserve basis. This method . . . is capable of extension to almost the whole of the technical branches of the Royal Engineers."

This is perfectly sound but it is not new, in fact, with modifications of nomenclature, it describes exactly the existing organization of many branches of the Engineers, an organization which has existed in the telegraph service since 1870. There is nothing new about the Special Reserve except the adjective, the main point is that they are a partly paid force—that is, paid for a part of the year only. The Engineers have used such an auxiliary organization for many years, and have experimented with many forms. In fact their experience in these details was largely drawn on in framing the existing regulations for the Special Reserve and the Territorial Force.

It would be easy to show that many other statements in the article are not in accordance with facts. But such a method of argument would be unsatisfactory, and I prefer to attempt a general account of the growth and present organization of the Royal Engineers, leaving it to the reader to draw his own inferences.

I must, however, enter a protest against the statement that the Corps of Royal Engineers has grown up from an aggregation of highly trained experts, and without due regard to war requirements. In reality the reverse is the case, and it may be confidently stated that the present numbers and distribution of all ranks of the Engineers is based entirely on our requirements for war, and has been so based for the last 50 years. As I propose to show below, every increase of the corps, whether of officers or men, has been the result of either war experience or what we know as war scares. Every increase also has usually been heralded by the report of a Committee drawn from within and without the Army, and has been carried out with the full approval of the military and civil chiefs at the War Office. Unfortunately, war and war scares are usually followed by a reaction, during which the tendency is to reduce the peace cadres to as low a point as possible, and reduction can only be avoided by employing officers and men in peace time on work which is remunerative to the State.

This furnishes one explanation of the fact that some officers and men of the corps are employed at home and in our colonies in various public capacities, but these have all some connection with their war duties, or give a training which is of value in time of war. But the Engineers are not the only corps in the Army whose officers are detached for such employment, as will be evident from a reference to pages 127 to 162 of the Monthly Army List. Indeed, if anyone were to trouble to analyse these pages it would be found that the proportion of Royal Engineers so employed is very small.

The real difference between the Royal Engineers and other corps is only one of procedure, as while in other arms officers employed on other than regimental duties are seconded, and thus do not appear in regimental establishments and returns, in the Royal Engineers there is no seconded list, and all officers remain on the regimental establishment, which thus appears to be unduly inflated.

A table is given at the end of this article, which shows the actual number of officers employed on regimental duty—that is, who would appear on the regimental list of a unit in the case of the infantry or artillery—and those employed on special duty within or without the Regular Army—who would be seconded.

I must also express my dissent from the reading of history with which Colonel Maurice prefaces his article. According to his view, everything worth anything in our Army dates from some period subsequent to the South African War. Before this date "the Regular Army consisted of a reserve of military material of all kinds, from which expeditionary forces were created for each campaign as the emergency arose."

I hardly think the late Lord Wolseley would accept such a description of the organization begun under Lord Cardwell some 40 years ago, and carried out by Lord Wolseley and several generations of brilliant officers in a series of reforms and improvements since that date. There is no reason to suppose that these officers were any less far-seeing, or had less appreciation of the art of war than the present generation of officers. While the more I study the past, the more convinced I become that there is nothing new under the sun, and that if we would only learn from the experience of the past, we should be saved from repeating many a bad mistake or unsatisfactory experiment.

GROWTH AND ORGANIZATION OF THE ROYAL ENGINEERS.

Prior to 1716.—Early beginnings.

[1] In the time of the Roman occupation of these islands every soldier, and especially every leader, was an engineer, as is evidenced by the traces of camps and fortifications which can still be found in so many places, though it is probable that experts were employed to work the catapults, battering rams, and similar engines of war.

Under our Norman and Plantagenet kings there begin to be found in the public records references to officials who performed much of the engineer work of the Armies which were assembled from time to time, and who supervised the system of

[1] This account of the early history up to 1862 is taken from the History of the Corps of Royal Engineers, by Major-General Whitworth Porter.

castles or fortified posts which were established throughout the land. These officials were not necessarily permanent, and had only a small staff, but when a campaign was imminent, a levy was made on the countryside, and artificers such as carpenters, smiths, woodmen, etc., were collected and formed into bodies of pioneers under officers, who were called at various times "Ingeniator," "Attilator," or "Trenchmaster."

This group of officers, in addition to fortification work in peace, looked after all the engines of war, including artillery.

Under the Tudor kings this force was further increased, and at the time of the defeat of the Armada, the "pioneers" numbered nearly 15,000 in a field force of 100,000.

1716—1787.—Development of the Officers.

During the seventeeth century the artillery and engineer sides of the work developed on gradually divergent lines, until in 1716 the artillery was definitely withdrawn from the charge of the engineers, and formed into a separate regiment. The following year the engineers were formed into a corps with a regular establishment of numbers and pay.

In 1757 the officers of this corps were given military rank in the Army.

As our Colonial Empire expanded during this century, various additions were made to the corps, and in 1771 a separate branch was formed in India.

On the declaration of peace in 1782, the numbers were reduced to ten companies of five officers each. Four of these companies were stationed abroad—at the West Indies, Quebec, Nova Scotia and Newfoundland, and Gibraltar. Six were at home—five in garrison at Plymouth, Portsmouth, Chatham, Scotland, and Channel Islands, and one employed on surveying and for field service.

In 1787 the corps of officers was given the title of "Royal Engineers," and its position in the Army was established as on the right of the line with the officers of the Royal Artillery.

1787—1862.—Growth of Rank and File.

So far the permanent organization had provided for officers only, the men required being either civilians specially enlisted, or soldiers detached from other corps when the emergency arose.

The first step towards the provision of a permanent corps of men was made in 1772 at Gibraltar, when a single company of Military Artificers was formed, to be officered by the corps of Royal Engineers. A second company was added in 1786.

In 1787 the same organization was extended to England, and six companies of a strength of 100 each were created. Each company contained 8 N.C.O's, 2 drummers, 60 artificers, and 30

labourers. These companies were localized at Woolwich, Chatham, Portsmouth, Gosport, Plymouth, and Channel Islands.

In 1793 four companies were added for service abroad, and various changes followed, till in 1806 there were twelve companies, eight at home, and four abroad. Each company had a strength of 126, and was composed entirely of artificers. The outbreak of the Peninsular War brought further demands for engineers, and in 1811 the corps was reorganized in four eight-company battalions, with a total strength of 2,861. At the same time the system of localization was dropped, and companies were moved in rotation from station to station. Nineteen of these companies were at home, and thirteen abroad, of which four were with the Army in Portugal. The strength of each company was 89, of whom 30 were "miners."

In 1812, as the direct result of the experience of the Peninsular War, the School of Military Engineering was founded for instruction in field works. In the same year the title of the rank and file was changed from "The Royal Military Artificers" to "The Royal Sappers and Miners," and the colour of the uniform was changed to red, so as to blend with that of the working parties of the line.

During the Waterloo campaign, eleven companies of sappers were doing duty with the Army in the Netherlands.

On the conclusion of the war, extensive reductions were made in the whole Army, and the sappers were reduced to 12 companies of 62 men each. A few years later three companies were added for survey work in England and Ireland, and four for general duty, but the corps was again reduced in 1833 to 12 companies of 91 each, of whom four were at home, five abroad, and three employed on the survey.

In 1846 the wave of economy had receded, and by 1849 the companies numbered 22, and the total establishment was 2,185. These figures held till the Crimean War, in 1854-5.

Before proceeding further, it may be convenient to say a few words on the field equipment of the engineers, or, as it was called, "The Train." In the early days, when artillery still formed part of the duties of the engineers, the train was very considerable, but it appears to have been collected for each campaign, and always broken up when a campaign was over.

At the commencement of the Peninsular War, the want of efficient transport for engineer tools and materials was much felt, and a suitable train had to be gradually formed. At the end of the Waterloo campaign there was an efficient engineer train, not only for bridging, but also for field stores. But on the conclusion of peace this rapidly disappeared, and the equipment was either allowed to rot in store or was used up for instructional purposes. Thus, while the engineer companies which accompanied the force in the Crimea had an

equipment of entrenching and other tools, they had no means of transporting them to the site of the required works. To remedy this, it was decided to raise a mounted branch of the corps, and the "A Troop, Royal Engineer Train," was raised and despatched to the Crimea, but too late to take part in the campaign.

In all, nine companies of sappers took part in the siege of Sebastopol, and this caused a demand for more companies at home, so that by 1857 the number of companies had increased to 32.

Following the Crimea, several companies took part in the Mutiny and China campaigns.

In 1856, to reward the gallant services of the corps of Royal Sappers and Miners, they were amalgamated with the corps of Royal Engineers, and the men were termed "sapper" instead of private.

The detachments at the School of Military Engineering had by this time got very large, and eventually, in 1861 and 1862, eight new companies were formed out of these detachments, bringing the total of the companies to 40.

In the same year—1862—a change was made in India by the amalgamation of the separate lists of Indian Engineer officers with the corps of Royal Engineers. The latter consisted at this date of eight battalions of about 40 to 50 officers each, and the Indian addition was considered as equivalent to seven battalions—afterwards increased to nine. But as the company was for all practical purposes the real unit, the battalion organization was only a form and was never used, though it lingered on in estimates till comparatively recent times.

The year 1862, may be taken as the conclusion of the first complete stage in the organization of the Royal Engineers, and it may be well to interrupt the historical summary of events to take a general view of the organization, which had grown up, and which embodied the views of the Army staff of that day.

There was, first of all, the depôt and school at Chatham, at which all officers and men were trained on first joining, and at which companies were put through a course of training before going abroad, and also on return from foreign service.

Except for the survey work there was no specialization. All companies were of equal strength and interchangeable, and were available to be employed on either fortress or field duties. Field works formed the main military training of the corps.

Note should be taken of the large number of artificers which were always included in the establishment. In fact, from the earliest times, whether under the name of pioneers, military artificers, or sappers and miners, the essential feature of the engineer corps has been that the men formed a body of expert workmen, officered by a corps of trained engineers.

In 1862, there was still in existence the special engineer train, which had been formed for the transport of bridging and field equipment in the Crimea, though it was being subjected to attack by the then Adjutant-General and the Quartermaster-General, who wished to break it up to get money for other purposes, and simply to allot the engineers on the outbreak of war some of the general military train of the Army.

The engineer officers, headed by Sir J. F. Burgoyne, objected to this change, on the ground that they would never be able to practice their war duties. The train was finally saved with a reduced establishment of horses, but only on the express condition that the horses would be available for employment on the works for four days in each week.

1862—1902.—Growth of the Modern Organization.

From this same year—1862—may be dated the gradual development of a new method of organization, by the formation within the corps of special "services" set aside and specially trained for particular branches of engineer work.

The first of these to appear were the mounted branches or engineer troops. I have explained above how the engineer train escaped disbandment, and it would probably have been left in a very moderate state of efficiency but for the lessons learnt from the American Civil War—repeating really the lessons of the Peninsular War of 50 years earlier—that an engineer train was essential to the efficiency of an Army.

The result was the formation of two mounted units—the "A" or bridging troop, and the "B" or equipment troop—with a mounted depôt for the training of drivers.

The "A" troop, as finally formed in 1864, contained four officers, 217 N.C.O.'s and men, and 145 horses. It carried 24 pontoons, and could apparently make about 100 yards of bridge. The men were partly drivers, and partly specially enlisted pontoniers. The "B" troop was divided into three sections, and a field park, with the intention that on mobilization for war, each of the sections would be attached to an existing service company, the park remaining with Army headquarters, and carrying the heavier stores, which were not always required by the companies. One troop thus organized was considered sufficient for an Army of 10,000 men.

It will be observed that the pontoniers were only trained in bridging and not in field works, they had no foreign service, and were eventually enlisted for three years' service only. The drivers received an elementary training in field works, they had no foreign service, and a short period of enlistment.

The "C" or telegraph troop was formed in 1870 for telegraph duties in the field, and at the same time a company was detailed for telegraph work under the Post Office, a second company being added in the following year. The institution

of the telegraph service involved the addition of two new classes to the corps, who are now called office telegraphists and line telegraphists. The telegraphists have almost no foreign service, and only spend sufficient time in the mounted units to thoroughly learn their work, after which they pass to the Post Office companies, and finally to the reserve.

The officers and men employed under the Post Office are paid mainly by that department; the advantages of keeping them on the Army Establishment are that they can be brought out for annual training, and are available at very short notice to complete the field units for war, or as a military nucleus for work on the line of communications.

While the mounted branch was developing in this way, changes were also taking place in the service companies. The first of these was the initiation in 1863 of the submarine mining service, following the practical use of mines and torpedoes in the American war.[1] Space does not admit of tracing the gradual growth of this service, it is sufficient to state that it acquired several new classes of men, and eventually developed on very independent lines, especially as regards its use of auxiliary forces, both at home and abroad. After eight years of experiment a company was allotted to submarine mining in 1871, and others were added, till in 1885 there were nine such companies.

In 1877 a change was made in the organization of "B" troop, which was split up into four sections, which were permanently attached to four companies. These latter were then called "field" companies. The field park was attached to the mounted depôt. This was part of a reorganization of the troops at or near Aldershot, to form an Army Corps of three divisions; the allotment of engineers to the Army Corps was one field company to each division, with, in addition, one field company, one field park, one bridging troop, and one telegraph division as corps troops. This organization was retained up to 1906.

About this period—1877—the service companies not allotted for special duty were called "garrison" companies, but they still remained interchangeable as regards individual officers and men with the field companies, and "field works" remained their most important military training. They were re-named "fortress" companies in 1886.

In 1882 two companies were specially trained in railway work for the Egyptian campaign of that year, and proved so useful, that this class of company was permanently retained in our organization.

In 1885 the whole work and organization of the Royal Engineers was carefully investigated by a committee, whose

[1] For further details readers are referred to the History of Submarine Mining in the British Army, by the writer of this article.

composition is worth quoting. The President was the Under-Secretary of State for War—first Earl of Morley, then the Hon. Guy C. Dawnay, and finally *Lord Sandhurst. The members, who changed in some instances during the proceedings, included General Viscount Wolseley (Adjutant-General), *Lieut.-General Sir A. Alison, Major-General Sir C. G. Arbuthnot, *Major-General H. A. Smyth, *Major-General Sir A. Clarke (Inspector-General of Fortifications), *Major-General Sir R. H. Buller (D.A.G. at headquarters), *Major-General Sir John Stokes (D.A.G., R.E.), *Mr. R. H. Knox (Accountant-General). Those marked with an asterisk signed the final report.

The result of their recommendations was the addition to the corps of 23 companies, with a strength of 126 officers, 1,748 warrant officers, N.C.O.'s and men, and 361 horses. Among other changes sufficient field units were added to provide for a second Army Corps, and additional fortress companies were provided for our foreign garrisons, many of which had no engineers except small submarine mining detachments.

This committee is a good example of the long series of committees which have discussed the organization, numbers and training of the Royal Engineers. It is impossible to trace all these in detail. But it is evident that such a committee was not in the least likely to add officers and men to the Corps of Royal Engineers solely that they might be employed on various peace duties; or, on the other hand, was it likely to take an exaggerated view of the number of Royal Engineers required in war.

From this date—1885—to the outbreak of the South African War, the history of the corps is one of gradual expansion to meet the extra work caused by the increased application of science to the art of war.

The first new unit to emerge was the mounted detachment, the progenitor of the present field troops. Then came the balloon companies, the parents of the aviation service.

At the same time there was a large development in the fortress units to man the electric lights, which were being installed at all ports in conjunction with Q.F. guns, to deal with torpedo-boat attack. These men formed part of the Submarine Mining Service.

There was also a very notable increase in the auxiliary corps connected with submarine mining, a very elastic organization being developed, which included militia, volunteers or reservists at home, and native levies, local militia or volunteers abroad. The principle followed was that each port was dealt with on its merits, and given the exact number of men required to man the submarine mining and electric light defences, part of these being permanent—either Royal Engineers or native—and part auxiliary.

In 1899 the outbreak of the South African War found the corps completely organized for war, and not only ready as regards officers and men, but with a practical equipment, and, in most cases, an adequate reserve, both of personnel and materiel.

Owing to the fact that the Army Corps organization was not followed, some of the Royal Engineer units were not used in the manner intended. Thus, the field park, though it was sent out, was never supplied with transport, and became an immobile depôt for stores instead of a train. Each division had one field company, but the companies attached to Army Corps headquarters were not used. The effect of these two changes was that the Army was only supplied with about two-thirds of the field engineers, which previous Army reformers had considered necessary. Bridging companies were used on both sides of the theatre of war.

The extended area of country over which the campaign took place, tried the resources of both the telegraph and railway branches to the utmost. Both came triumphantly through the ordeal, thanks largely to the fact that they formed part of a larger corps. Thus, the telegraph service drew officers from the submarine mining and other branches, while their alliance with the Post Office produced the necessary operators. The railway branch also got much assistance from officers and men taken from general corps duty, but this work was really saved from failure by the happy accident that we had in Egypt a body of Royal Engineer officers who had just carried out successfully the railway work of the Dongola campaign, and by the foresight of the Indian Government in employing a considerable number of Royal Engineer officers in connection with Government railways. Such work may be described as "civilian," but in this case it proved a very real preparation for war.

Two new classes of units were formed during the campaign —a company for steam road transport, and several searchlight sections. There was, in addition, a general increase of all the field units to provide for home defence.

It may be confidently stated that the Royal Engineer units performed their full share of the campaign, while the fact that they were all employed and that much use was made in addition of Engineer Militia and Volunteers, showed that we had not too many Regular Royal Engineers.

1902 and after.—Reorganization.

On the completion of the war in 1902, there followed the usual period of reconstruction and reduction. There was a series of committees and a full budget of reports. In the midst of this the whole headquarter organization of the Army was remodelled, and the Army Council system introduced in 1904.

Unfortunately, while efficiency was arduously sought for, economy was also enforced, and nearly every arm came in for some reduction. In the engineers, besides reducing the extra units formed for the war, the submarine mining service was abolished. But the electric light and other fortress duties were retained, and the whole of the field services.

At first, the Army reorganization proceeded on the basis of three Army Corps, each of three divisions of two brigades, but in 1906 it was decided to replace this by an organization of large divisions of three brigades each, leaving the higher organization of Army Corps or Armies to be formed as required for each campaign.

About the same time a committee was assembled, under the presidency of Sir Evelyn Wood, to report on the strength and organization of the Royal Engineers. The report of this committee has not, I believe, been published, but it may be stated that the Army Council were unable to find funds to provide the full numbers recommended, and reductions were insisted on and carried out in both the field and fortress units. Among other things, the special enlistment of pontoniers was stopped, and the bridging units reduced to the status of trains, while the establishment of the depôt was considerably reduced.

The nett result of the changes then carried out may be seen in war establishments and the Monthly Army Lists, and full details are given in the Royal Engineers' Monthly List, which accompanies the monthly issue of the *Royal Engineers' Journal*. This list not only gives a complete table of all units, but also gives full details of the mobilization of the officers for the Expeditionary Force.

Recommendations.

It now only remains to deal with the recommendations of Colonel Maurice for the future organization of the field units, and to discuss his solution of the difficulties he refers to.

I gather that he does not propose any changes in the bridging trains, the signal service, or the units for the line of communications, except that he thinks the peace cadres of all these units might be further reduced. But he objects to the employment of Royal Engineers on the survey or in civil capacities, and wishes to make certain alterations in the work and duties of field troops and field companies.

Space does not permit of detailed consideration of our peace establishments; it is sufficient to state that they have been subjected to the closest criticism, and are the smallest possible to comply with the limiting conditions of the supply of drafts, formation of reserve, and the execution of manœuvres.

As regards employment on the survey, it would appear that Colonel Maurice has overlooked the fact that all officers and men so employed are paid by the Board of Agriculture, and not

by the War Office, so that these officers and men form a very cheap reserve for general corps work. Similarly, the officers employed under other departments of the State and in the Colonial Armies, are at least doing no harm to our war organization, while they also act as a very cheap reserve.

Now, to come to the main contention in Colonel Maurice's article—his criticism of the field companies—the points he brings forward may be thus summarized :—

1. The duties of engineers in the field do not require a high degree of expert skill.
2. An organization of pioneer units would be sufficient to provide for these duties.
3. Pioneer units would be cheaper than engineer units, and it would not be necessary to employ them on barrack works in order to economize. The saving effected by using pioneers would be sufficient to pay some other corps to carry out the barrack services.
4. Pioneers could thus devote their whole time to their military training, and would become more efficient at it than the similar class of engineers.

To these points the following replies can be given :—

1. It is true that infantry and cavalry soldiers are trained in the simpler forms of engineer field works, but the difference between their performance and that of trained Royal Engineers is the difference between the best amateur and the professional, that is not so much a question of finish, but of accuracy and quickness in execution. And a saving of time is important in war.

Also an Army is not always fighting or even marching; when stationary, engineers are required to carry out many important services connected with the health of the troops, such as improving water supply, sanitary services, or hutting. Or bridges may have to be repaired and other constructional work undertaken. If the field units cannot carry this out, engineers must be attached to the Army for this purpose. For these reasons all our experience of war shows that engineers or pioneers (whichever name may be used), must include a large proportion of artificers, and be commanded by officers with considerable technical training.

2. There are several kinds of pioneers. Thus, the Indian pioneer, who is referred to by Colonel Maurice, is only an improved infantry soldier. He is not an engineer and does not execute engineer services, but is employed to supplement the engineers. India does not depend only on pioneers, but has three native corps of sappers and miners. These corps are not only highly trained, but are officered by the Royal Engineers, and have a considerable stiffening of European N.C.O.'s drawn from the Royal Engineers.

On the other hand, the German pioneer, who carries out the field engineer duties in the German Army, approaches in qualifications and training very closely to our own engineers. Thus, according to the account of the German pioneers which appeared in the April number of the *Army Review*, the German pioneer officers, after six months in the ranks and three years as young officers, undergo a course of technical instruction lasting two years, which agrees very closely with the course for our own engineer officers. It is noteworthy that the syllabus of instruction includes mathematics, fortification, architecture and survey, and that in addition selected officers go through higher special courses.

3. In all discussions on the Royal Engineers, the question of pay always comes to the front, and exaggerated statements are made as to the emoluments of the officers and men. But the tendency of all recent changes of pay has been to level up other corps and to leave the engineers stationary. Making allowance for the fact that engineer officers do not get the benefit of soldier servants, and that the servant's allowance only covers about one-third of the expense of a civilian servant, it will be found that the engineer officers of the rank of captain and subaltern get rather less pay than officers of their rank in the Garrison Artillery, very little more than officers of the Army Service Corps, and considerably less than officers of the Medical, Ordnance, and Veterinary departments. Any financial advantage which attracts officers to the engineers lies really in the larger proportion of appointments in the higher ranks, and the consequent certainty of earning a sufficient pension. This is a consequence of their employment on the supervision of works services, and would not apply to a pioneer corps.

Similarly with the men, sappers get engineer pay at rates which vary from 6d. to 2s. a day, but they get no proficiency pay. Any handicraft has to be learnt, and it takes several years for a sapper to earn the higher rates of engineer pay. Thus the younger men get only about 6d. a day more than an infantry soldier, and against this, they have to wait much longer for promotion to non-commissioned rank. It is, I believe, a fact that the pioneers of the infantry who are skilled tradesmen rarely transfer to the engineers, as they are financially better off and have better chances of promotion if they remain in their corps.

If a corps of pioneers were formed, in order to attract suitable men it would be necessary to give some extra pay to both officers and men, practically equal to the present rates of the Royal Engineers.

The main reason why so many Royal Engineer officers advocate the employment of sappers on "works," is not solely for the sake of economy—though that has its value in retaining a larger number of men with the Colours than would be possible

on any other system—but because it gives all ranks an opportunity of doing real work of a practical nature, which has to stand the test of use. Such employment also provides a technical training for the men, which is of use to them in civil life, and helps to attract a good class of men. But I admit that the system of employment on barrack works has certain undoubted disadvantages, which I will deal with below.

4. As regards the suggestion that pioneers would be more constantly employed on military training, I will only remark that even the infantry are not always carrying out tactical field days. During the leave season and the first part of the training year the infantry are repeating the more elementary part of their military training. During this period the engineer can be maintaining his individual proficiency by employment at his trade. Also the engineer working hours are considerably longer than those of an infantry soldier, so that he should be able to find considerable time throughout the year to work at his trade.

I believe that the difficulty found in getting engineer officers for winter schemes, is not due so much to their employment on the works, as to the fact that winter leave and the call of the foreign service roster reduce the officers available for duty during the winter months to about one-third of the normal number. The remedy for this is either an increase of the establishment of officers at home stations, or a further reduction of the amount of leave granted to Royal Engineer officers.

The substitution of a corps of pioneers for the present field units of the Royal Engineers will have other and far-reaching effects on the general organization of the corps of Royal Engineers, which will react on the efficiency of the pioneers themselves. As an example, take the arrangements for foreign service. It is not proposed to employ pioneers on fortress duties, so that the only foreign stations for pioneer units will be South Africa and Egypt, and their foreign service roster will be a small one. We may, therefore, expect to find that their period of enlistment with the Colours will be for three years, and that only the numbers required for foreign drafts or for N.C.O.'s will be allowed to extend their service. Pioneer officers will have little experience of the world or of ground outside the narrow limits of the home training grounds.

On the rest of the corps of Royal Engineers the effect will be to increase the proportion of foreign service by the extent to which the pioneer officers are relieved. A reference to the table at the end of this article shows that, omitting officers under instruction, coast battalion and quartermasters, we have 380 officers of Royal Engineers at home to 531 abroad, the proportion of each rank being still more unfavourable to the junior ranks. Of the men of the fortress service we have at present 1,065 at home and 1,439 abroad, but the home establishment

contains a larger proportion of men for electric light and telephone work, and also is always considerably below establishment for various reasons, some of which I have dealt with below. The result is that reliefs, for what may be called the general duty sappers abroad, must be drawn very largely from the field companies at home. If the latter become pioneers, we shall have to add at least 25 officers and 500 men to the peace establishment of fortress engineers at home to provide for drafts.

Or, again, take the effect on our mobilization arrangements for officers. A field company has at present three officers in peace and six in war time, and on mobilization can draw officers from the fortress units, survey, works, or the depôt. The majority of these officers will have had a very thorough engineer training, and considerable experience of tactical work, either at home or abroad. If the field units are turned into pioneers and separated from the Royal Engineers, these sources of supply will be withdrawn, and they will have to draw officers from the reserve or borrow from infantry battalions—surely the worst possible method from the point of view of the efficiency of the Army.

It will be seen from the above, that I am not prepared to accept Colonel Maurice's solution for the difficulties he describes.

Alternative Recommendation.

It remains to consider whether there is any other possible solution which does not involve so serious a disturbance of the present organization of the Royal Engineers.

The first point seems to be to establish a definite proportion between the time allotted to military training and that spent on engineer works. I have already explained that employment on works is essential to the training of both officers and men, but that this does not in itself militate against any reasonable amount of employment on tactical exercises with other troops. One difficulty of the barrack work is that it cannot be dropped suddenly, and must be carried out from month to month, and according to a definite routine. In devising schemes for training this routine must be considered. A second difficulty is financial. Everybody knows that there is a special staff for engineer barrack services composed of officers, clerks, draughtsmen, foremen of works, and civilian employees, quite apart from the engineer companies. But the tendency of the barrack work is to increase with the additional comforts now given to the soldier, and the increased standard of sanitary efficiency which is now, happily, enforced. And this increase involves constant demands for more staff. When engineer companies are employed on works, the

tendency, especially in the financial branches of the War Office, is to say that the extra staff must be found from the Royal Engineers' companies, who thus gradually increase their proportion of works employment, at the expense of their military training. An increase of works services should be met by an increase of the special works staff.

Another point which much affects the usefulness of the field companies, is the fact that under the system of Army estimates the establishment voted for the various units is a maximum. But there are in every corps deductions to be made for men non-effective through sickness, furlough pending discharge, or fluctuations in the rate of recruiting. Such men should really be covered by the strength voted for the depôt, but this is not done in any branch of our Army, and the effect is that all service units at home are always considerably below their established strength. This deficiency is still further increased during the trooping season by the number of men on the high seas *en route* for foreign garrisons.

During the past two years the recruiting for the engineers has been unsatisfactory for various reasons, and the strength of the corps has been some 500 men below its establishment. A large part of this deficiency has fallen on the field companies at home, and it is probable that their actual strength for this and other reasons has fallen more than 50 per cent. below establishment during the winter months.

For these reasons I am decidedly of opinion that the only way of increasing the time which the field companies can give to military training is to increase the establishment of the Royal Engineers at home by a number sufficient to cover all the forms of waste which I have enumerated. It is impossible to make an accurate calculation without access to official documents, but I believe that at the least the figures I have suggested above, will be necessary, *viz.*, 25 officers and 500 men.

The real problem of engineer organization is not that the corps is unwieldly or badly organized, but that it is really over-organized, and the officers responsible for this organization have been almost too ready to meet outside criticism, and to reduce numbers by increasing the work and duties of individuals and units. The problem is really of the same nature as that which has to be faced by the individual who tried to get a quart of liquid into a pint pot, or that of the legendary lady who tried to get a number six foot into a number two shoe.

I venture to prophecy that, however the Corps of Royal Engineers may be cut, carved, and re-arranged, no solution will be found satisfactory which does not take account of the cardinal fact that the present establishment of engineers is insufficient for the duties they have to perform in peace and war.

Royal Engineer Officers.—Peace Distribution.

Detail.	Home.	Abroad.
Expeditionary Force and Field Units.		
5 Field troops	10	—
15 Field companies	36	12
16 Signal companies	38	1
3 Railway companies	8	—
1 Works company	2	—
Lieut.-Colonels and Staff for Expeditionary Force	14	—
Fortresses and Garrisons, &c.		
28 Fortress companies	44	59
Lieut.-Colonels and Officers for Fortresses	33	21
Lieut.-Colonels and Officers for Garrisons	44	12
Depôt—Companies	23	—
Staff	5	—
Special Reserve—Adjutants	2	—
Colonial Survey Section	—	2
Young Officers under Instruction	46	—
Do. for India	30	—
Coast Battalion	14	—
Quartermasters and Riding Master	32	10
Total drawing regimental pay	381	117
Serving with British Army but paid on Special votes.		
War Office	32	—
Army Staff	6	—
School of Military Engineering	16	—
R.M. Academy	8	—
School of Musketry	1	—
School of Signalling	2	—
Flying Corps	7	—
Territorial Force—Adjutants	23	—
Ordnance Factory and Inspection Staff	5	—
† Total	100	—
Serving in India	—	377
Serving with Colonial Forces.		
Australia	—	5
Canada	—	8
Egypt	—	17
Serving under other Departments.		
Ordnance Survey	19	—
Post Office, Telegraphs	8	—
Colonial Office, Survey and Boundary Commissions	1	17
Lent to Foreign Governments	3	—
Total not paid on Army votes	31	424
Grand Total	512	541
	1,053	

† This total includes 10 Quartermasters or Coast Battalion officers.

NOTE.—The above table shows a normal distribution, but as the Royal Engineers have no "seconded" list, the numbers on regimental pay vary slightly throughout the year.

SUMMARY OF MILITARY ORGANIZATION OF PORTUGAL.

(By courtesy of the Editor of *The Statesman's Year Book*.)

The territorial defence of Portugal and its colonies is trusted to the Metropolitan and Colonial Armies, which have separate establishments.

METROPOLITAN ARMY.

The military organization of Portugal is based on obligatory service, from which no one is exempt except those physically unfit for service, who have to pay a tax in proportion to their income or salary for the time which they should have served. All citizens have to report themselves at the age of 17 years, but are not called to the Colours until their 20th year. From this age they serve ten years in the Active Army, ten years in the Reserve, and five years in the Territorial Army. During the first year of their period of Colour service, they have to pass in their recruit's drill, and must take part in the annual mobilization, which takes place in September, under the name of "Repetition School."

The period for recruits' instruction is:—

Infantry and administrative troops...	15 weeks.
Artillery	20 ,,
Engineers and sanitary troops ...	25 ,,
Cavalry	30 ,,

There are numerous volunteer societies for military instruction, which are patronized by the War Office, and which undertake the instruction of their members (from 17th to 20th years) especially in musketry.

The fundamental unit for battle is the division with a complement of 18,000 men. Each division consists of:—

- 4 Infantry regiments.
- 1 Cavalry regiment.
- 1 Artillery regiment.
- 1 Company of Army Service Corps.
- 1 Company of Train.
- 1 Sanitary company.
- 1 Company of sappers.
- 1 Section of pontoniers.
- 1 Section of searchlights.
- 1 Section of field telegraphists.
- 1 Section of wireless telegraphists.

The Metropolitan Army consists of three parts:—

(a) The Field Army.

Consists of eight divisions on the continent, and three independent *commandos* on the adjacent islands of the Azores and Madeira. These are composed of:—

INFANTRY.—Thirty-five regiments of infantry of three battalions of four companies each (rifle, Mauser-Vergueiro 6.5 mm., m/1904).

ARTILLERY.—Eight groups of three batteries of quick-firing guns (each battery has four Maxim-Vickers quick-firing guns; a new kind of material is being experimented with).

CAVALRY.—Eleven regiments of cavalry; eight of these, being divisional cavalry, have three squadrons each; the other three, which constitute an independent brigade, have four squadrons each. Armament: sword and Mannlicher carbine, 6.5 mm. m/1896; two regiments have lances in addition; the independent cavalry brigade has also one section of machine guns per regiment.

FIELD ARTILLERY.—Eight regiments of field artillery (three of two groups and five of three groups). Armament: 7.5 cm. Canet gun quick-firing m/1904. Some batteries are still armed with the 9 cm. Krupp m/1878, which are gradually being replaced by the Canet type.

HORSE ARTILLERY.—One group of two batteries; armament: Krupp 7.5 cm. quick-firing gun m/1906.

MOUNTAIN ARTILLERY.—One regiment of three groups; armament: Krupp 7.5 cm. quick-firing gun m/1904. Two groups of howitzer batteries, which are still under trial. Three independent batteries of mountain artillery for the garrisons of the Azores and Madeira; armament: 8 cm. gun.

GARRISON ARTILLERY.—One battalion of garrison artillery, with six companies and one group of independent companies. Armament: 9 cm. and 15 c. cannons, Krupp system. One battalion of foot artillery; armament: howitzers, Schneider-Canet system, quick-firing, 15 c. Two battalions of seven companies of coast artillery. One group of independent batteries of coast artillery. One company of specialists (telegraphists and artillery electricians).

TECHNICAL TROOPS.—Eight companies of sappers, eight sections of pontoniers, eight sections of searchlights, eight sections of field telegraphists, eight sections of wireless telegraphists, two sections of independent field telegraphists, one bridging park, one aeronautical company, one group of two companies of military railwaymen, one company of fortress telegraphists, eight companies of army service corps, eight companies of train, eight companies of medical corps troops.

(b) The Reserve Army.

The Reserve Army consists of: 35 regiments of infantry, eight squadrons of cavalry, eight groups of field artillery, three sections of coast artillery, three sections of garrison artillery, eight companies of sappers, one company of pontoniers, eight brigades of military railwaymen, eight sections of army service corps, eight sections of medical corps troops. All these corps in time of peace have only the superior staffs, which, in case of war, are completed by officers from the reserve.

(c) The Territorial Army.

The Territorial Army is composed in time of war of a number of battalions necessary for the number of individuals subject to that service, men from 17 to 20 years of age, and from 40 to 45 years of age. The staffs in time of war are composed of senior officers of the reserve and retired officers (veterans).

Miscellaneous.

FACTORIES.—Two factories, one for food supply, and the other for clothing, at Lisbon, and various depôts all over the country, complete the military organization of Portugal.

BUDGET.—The Budget for the Metropolitan Army for 1912-13 is £2,074,931 12s.

FORTIFICATIONS.—The only fortress, which is considered as such, in Portugal, is the entrenched camp of Lisbon, whose fortifications are quite modern. They extend not only all round that city, but also on to the peninsula of Setubal.

Supplementary Troops.

We have still to add to the military forces of Portugal the following corps, which have military organization, and which, in time of war, are especially designated for provost department service and convoy duties. The armament is the Kroppatschek 8 mm. rifle m/1886.

THE REPUBLICAN GUARD.—Is in charge of maintaining public order and policing the country and roads. It is composed of six battalions of infantry, two independent companies, and three squadrons of cavalry. Total, 146 officers, 5,000 men, and 800 horses.

THE FISCAL GUARD.—For customs duty, is composed of 20 companies of infantry, and two squadrons of cavalry. Total: 92 officers, 5,100 men, and 300 horses. The cost of maintenance of these corps is charged to the budget of the Departments of the Interior and Finance respectively.

THE COLONIAL ARMY.

This Army is organized on a voluntary basis, as regards the European elements, and on a basis of conscription as regards the natives.

The officers and sergeants are drawn partly from the Metropolitan Army in commission, and partly from the colonial list. There are also special lists for the colonial officers' hospital corps.

The first line troops forming the garrisons of the different colonies are :—

Cape Verde.—One company of police and one company of artillery.

Guinea.—Two sections of artillery, one corps of native "tirailleurs."

S. Tomé.—One police corps, and one mixed company of artillery and infantry.

Angola.—One police corps, one battery of artillery, two mixed companies of artillery and infantry, two squadrons of dragoons, two companies of European infantry, 18 companies of native infantry, four depôt companies, and one disciplinary company.

Mozambique.—One police corps, one battery of artillery, two squadrons of dragoons, one company of European infantry, ten companies of native infantry, five depôt companies, and one disciplinary company.

India.—One police corps, one company of European infantry, and six companies of native infantry.

Macao.—One police corps, one company of garrison artillery, and one company of European infantry.

Timor.—One mixed company of artillery and infantry, and one squadron of native cavalry.

Total.—649 officers, 9,759 men (2,532 Europeans, and 7,227 natives), and 300 horses. The total military budget of all the colonies for 1912-13 is £591,234 8s.

The European troops are armed with the Kroppatschek rifle 8 mm. m/1886, and the natives with the Martini-Henry 11 mm. rifle.

The Colonial Artillery is armed with a bronze mountain gun, 7c. m/1887, Canet; 7.5 cm. and 7.5 cm. quick-firing Ehrhardt.

Besides the above-mentioned troops, there are in Angola and Mozambique various companies of second line troops.

NAVAL NOTES.

BRITISH EMPIRE.

APPOINTMENTS AND RETIREMENTS.—The following are the principal appointments and retirements from July to September :—

Appointments—Captains T. D. W. Napier to be Commodore in command of Second Light Cruiser Squadron, W. E. Goodenough to be Commodore in command of First Light Cruiser Squadron, A. K. Waistell to command Eighth Submarine Flotilla, V. H. S. Haggard to command Seventh Submarine Flotilla, G. C. A. Marescaux to be King's Harbour Master at Portland, R. Webb to "President" for service at Admiralty, C. E. Le Mesurier to be Flag-Captain at Royal Naval War College, R. G. A. W. Stapleton-Cotton to be Flag-Captain to Commander-in-Chief at Portsmouth, C. J. Wintour to command Fourth Destroyer Flotilla, W. Henderson to be Naval Attaché at Berlin, E. H. Grafton to be Captain of Chatham dockyard and King's Harbour Master, H. F. P. Sinclair and C. T. M. Fuller to Director of Naval Ordnance's Department, H. F. Oliver to "President" for service at Admiralty, R. F. Phillimore to be Commodore while serving as Chief of Staff to Commander-in-Chief in the Mediterranean.

Retirements—Captains F. F. Haworth-Booth (July 1st), G. P. E. Hunt (July 5th), H. D. Wilkin (August 9th).

COMBINED FLEET EXERCISES.—On the conclusion of manœuvre leave in the squadrons and flotillas of the First Fleet, orders were issued for combined exercises to be held in the North Sea under the command of Admiral Sir George Callaghan in the week from October 6th to 11th. Not only the battle and cruiser squadrons, but the destroyer and submarine flotillas, were ordered to take part in these operations. With the exception of the Fourth Battle Squadron, which left Portland for Gibraltar on September 22nd, and the Fourth Cruiser Squadron, which left Devonport for Bermuda on September 29th, the First Fleet was at full strength. Similar combined exercises were carried out from October 21st to 26th, 1912, previous to the departure of the Third Battle Squadron for the Mediterranean. The programme issued showed that, after completing the present year's autumn exercises, the First Battle Squadron was to proceed to Portland for squadron day firing, and then to home ports to store in readiness for the cruise to the Mediterranean; the Second Battle Squadron was to finish its practices at Cromarty and Queensferry, and return to Portland on October 22nd; while the Third Battle Squadron was to be at Portland until the end of October, when it was to proceed to Lamlash to complete practices. The First Battle-Cruiser Squadron was to complete its practices at Cromarty and return to Portland before the end of October; the Second Cruiser Squadron was also to complete practices at Cromarty and return to Portland by November 7th; and the Third Cruiser Squadron

was to go to its home ports to store before leaving for the Mediterranean cruise, as was the First Light Cruiser Squadron. Combined exercises of the Patrol Flotillas, both destroyers and submarines, took place from September 22nd to 27th, the Humber being the appointed rendezvous.

The Fleet in the Mediterranean.—It was officially announced on September 23rd that the Admiralty had decided to send a detachment of the First Fleet for a cruise into the Mediterranean early in November, returning home in time for Christmas leave. The detachment is to be under the command of Vice-Admiral the Hon. Sir Stanley Colville, and to consist of a division of four battleships of the First Batttle Squadron, the four cruisers of the Third Cruiser Squadron, the four light cruisers of the First Light Cruiser Squadron, and the 16 destroyers of the Third Destroyer Flotilla. This force is ordered to join the Fourth Battle Squadron of four battleships at Gibraltar, whereupon manœuvres will be carried out in the Western Basin between Admiral Colville's force and the Mediterranean Fleet, under the Commander-in-Chief of the latter, Admiral Sir Berkeley Milne. The combined force will then make a cruise extending as far as Alexandria, visiting several Mediterranean ports. The destroyers of the "Beagle" class will not return to England, but will remain for duty in the Mediterranean Flotilla, the destroyers hitherto in the latter returning with the battleships and cruisers to join the reserve at home. The ships on the Mediterranean station at the end of September were three battle-cruisers of the "Indomitable" type in the Second Battle-Cruiser Squadron, four battleships in the Fourth Battle Squadron, four armoured cruisers in the First Cruiser Squadron, and seven light cruisers, four attached to the station, one attached to the Fourth Battle Squadron, and two lent from the First Light Cruiser Squadron. Admiral Sir Berkeley Milne left Malta on August 19th for Gibraltar to meet the vessels returning from England after the annual manœuvres, and the ports visited during August and September by the British vessels included Phillipville, Oran, Cartegena, Valencia, Alcudia Bay, and Palma.

The "Queen Mary."—The new battle-cruiser "Queen Mary" was commissioned with an active crew at Portsmouth on September 4th, and was raised to full complement on the 16th. Her Majesty the Queen sent a telegram to Captain W. R. Hall, commanding the vessel, in which she said: "On the occasion of your hoisting your pennant on board the 'Queen Mary,' I offer you, your officers and men my hearty good wishes for a happy and prosperous commission." According to statements in the Press, an interesting innovation is being made in the new battle-cruiser. No master-at-arms nor ship's police are included in her complement. The disciplinary duties which in the ordinary way would fall to the ship's police are being entrusted to selected petty officers. A master-at-arms and five ship's corporals joined the "Queen Mary" at Jarrow and accompanied her to Portsmouth, performing the usual work connected with the commissioning of a new vessel, but after the pennant had been hoisted they were discharged to the naval barracks. The "Queen Mary" arrived in Weymouth Bay on September 27th to join the First Battle-Cruiser Squadron.

New Cruisers.—Of the four light cruisers authorized in the 1911-12 financial year, the "Fearless," subject to satisfactory acceptance trials, was ordered to be commissioned on October 14th for the First Light Cruiser Squadron. The "Birmingham," "Nottingham," and "Lowestoft" are completing afloat. Of the eight light cruisers authorized in

1912-13, the first to be put afloat is the "Aurora," which was launched at Devonport on September 30th by Mrs. George Lambert, wife of the Civil Lord of the Admiralty. October 25th was fixed for the launch at Chatham by Mrs. Macnamara, wife of the Parliamentary Secretary of the Admiralty, of the "Arethusa," the second of the new type. The remaining six vessels are building on the stocks in private yards. Names for the eight light cruisers authorized in the current year's programme were officially announced on September 21st. They will be known as follows, the building yard being given in brackets:—"Calliope" and "Conquest" (Chatham dockyard), "Cordelia" and "Carysfort" (Pembroke dockyard), "Cleopatra" (Devonport dockyard), "Comus" (Swan, Hunter & Wigham Richardson, Wallsend-on-Tyne), "Caroline" (Cammell, Laird & Co., Birkenhead), and "Champion" (Hawthorn, Leslie & Co., Newcastle-on-Tyne). Following the precedent set for the first time in 1912, the Admiralty issued with these names a list of warships which had already borne them, and the services, etc., connected with each name.

Purchase of Destroyers.—It was officially announced on September 5th that, in addition to the six torpedo-boat destroyers ordered from private firms in August (referred to in the September issue of the Journal), the Admiralty had ordered seven more vessels of the programme of 1913-14. Three of these will be supplied by Messrs. Yarrow & Co., of Scotstoun, N.B., two by Messrs. Thornycroft, of Woolston, Southampton, and two by Messrs. Hawthorn, Leslie & Co., of Newcastle-on-Tyne. Some of these destroyers were begun by the firms a few months ago as stock boats. As they are practically of the same dimensions as the Admiralty design for 1913-14, and offer in some respects certain slight advantages, the Admiralty decided to exercise the option of purchase offered to them. The effect of taking over these stock boats will be to accelerate by a short period the date at which the destroyers of the 1913-14 programme become effective. Three of the 16 destroyers in the programme remained to be ordered on September 30th.

Committees of Inquiry.—In September, it was announced that two more Admiralty Committees had been appointed under the presidency of flag officers to inquire into two subjects of importance to the personnel of the Navy. Rear-Admiral H. H. Campbell, who was appointed earlier in the year to supervize the arrangements for the equipment of certain merchant steamships with guns in accordance with the policy outlined by the First Lord in his speeches on the Navy Estimates, is the president of a committee which has been constituted to inquire into the matter of wardroom and gunroom mess accounts. The committee will deal specially with messmen and their responsibilities and duties, agreements and accounts, the means of securing that the credit of messes is not improperly pledged, and that all goods obtained for messes are duly paid for, and the method of obtaining the payment of mess debts of officers discharged from ships or from the service. Rear-Admiral the Hon. H. L. A. Hood is the president of another committee which is inquiring into the question of the training of young seamen and boys in sea-going ships. The other members of this committee are Captains G. C. Cayley and E. S. Carey, Commanders O. Backhouse and S. D. Forbes, Mr. J. W. S. Anderson, of the Secretary's Department at the Admiralty, and Fleet-Paymaster W. Gask as Secretary. The committee appointed in August, under the presidency of Rear-Admiral E. E. Bradford, to inquire into matters connected with stores and storing accommodation on board

His Majesty's ships, began its investigations at Chatham on August 26th, and at Portsmouth on September 11th. Members of the committee appointed in January, under the presidency of Vice-Admiral H. P. Williams, to inquire into methods of heating and ventilation on board ship, have visited the United States. From July 10th to July 23rd, they were at Washington, Newport News, Boston, Newport, Philadelphia, and New York, and among the American warships they inspected were the "Utah" and "Wyoming." Vice-Admiral Williams was accompanied by Fleet-Surgeon R. C. Munday and Mr. E. N. Mooney, of the Royal Corps of Naval Constructors.

Naval Cadetships.—It was officially stated on September 18th, that in future, when the results of the examinations for naval cadetships are declared, a certain number of the successful candidates, who have shown excellence in the qualifying literary examination, and have also been highly recommended by the interview committee, before which each candidate has appeared, will be awarded an "honourable mention" in the published list. This method was adopted for the first time in the case of the successful candidates for Osborne at the July qualifying literary examination, and of the 68 cadets who joined the college on September 18th, 13 were declared worthy of "honourable mention." It was also announced in September that the Admiralty were prepared to consider cadets who had completed a voyage to Australia in the White Star Line training ship "Mersey" for appointment as probationary midshipmen in the Royal Naval Reserve new scheme. After one year in the Navy, these cadets can return to the "Mersey" for the completion of their apprenticeship, and the whole period will count with the Board of Trade in qualifying for examination as second mate.

The Royal Australian Navy.—On relinquishing office as Minister of State for Defence, Senator the Hon. G. F. Pearce issued a memorandum, dated June 23rd, 1913, reviewing the progress made by the Defence Department in the three years which had elapsed since April 29th, 1910. Under the heading of "Naval Defence," it is stated that on June 4th, 1910, Admiral Sir Reginald Henderson was invited by cable to come to Australia to advise regarding a scheme for the naval defence of Australia. He accepted, arrived on September 7th, and presented his report on March 1st, 1911. In regard to ships, the destroyers "Parramatta" and "Yarra," built in England, arrived in Melbourne in December, 1910, and the "Warrego" was launched at Cockatoo Island on April 4th, 1911, and commissioned on June 1st, 1912. The cruiser "Melbourne" arrived at Fremantle from England on March 10th, 1913. The approaching arrival of the "Australia" and "Sydney" was also noted. Two submarines were said to be practically completed, and a parent ship for them had been ordered through the Admiralty to be built in Great Britain, as well as an oil supply ship. Oil storage vessels for harbour use are being built in Australia. The cruiser "Brisbane," and destroyers "Swan," "Derwent" and "Torrens," are building in Australia. As regards other vessels, the cruiser "Encounter" was taken over by the Commonwealth on July 1st, 1912, to serve until the "Brisbane" is completed. The cruiser "Pioneer" was also taken over, on March 1st, 1913, as a gift from the Admiralty. The "Protector" is being re-armed for use as a gunnery tender at Williamstown, and the "Gayundah" is also being re-armed for use as a training ship for the naval reserves. The Australian Fleet at present constructed is thus as follows:—"Australia," battle-cruiser;

"Melbourne," "Sydney," "Encounter," and "Pioneer," cruisers; "Protector" and "Gayundah," gunboats; "Warrego," "Parramatta," and "Yarra," destroyers; "Countess of Hopetoun" and "Childers," torpedo-boats; and "A.E.1" and "A.E.2," submarines. As regards personnel, the total in 1910 was 240, but the total on June 1st, 1913, was 3,400, of whom 1,660 had been recruited in Australia. Recruiting and training accommodation were described, and the memorandum also dealt with administration, naval bases, wireless, naval reserves, naval expenditure, and the Royal Australian Naval College. Under the last-named heading, it was stated that entrance to the college is by competitive examination and medical test, and the college course is free. Rear-Admiral Sir George E. Patey, in the "Australia," with the "Sydney," arrived at Albany, Western Australia, on September 19th, where he issued the following message to the Press: "The Royal Australian Navy has come to stay. The scheme is sound and well thought out, and a good beginning has been made. We received a most complimentary welcome in South Africa, and have been much gratified by welcoming messages from Australia and New Zealand. We look forward to our work with the greatest enthusiasm."

AUSTRIA-HUNGARY.

The Second Dreadnought Division.—Some further particulars have been published concerning the design of the battleships in the second division of Dreadnoughts for Austria-Hungary. They will have a displacement of 25,000 tons, as compared with the 20,000 tons of the four vessels in the first division. Their main armament will consist of ten 14-in. (35.6-centimetre) guns, with a length of 45 calibres, or nearly 52 feet, and a weight of about 70 tons, supplied by the Skodawerke at Pilsen. The earlier Dreadnoughts have twelve 12-in. (30.5-centimetre) guns. An important difference will be made in the matter of the distribution of armament, the triple turret system of the "Viribus Unitis" class being abandoned in favour of a return to twin turrets, of which there will be five, mounted on the middle line of the ship. It has been stated that anti-aircraft guns will also be carried, and that the vessels will be provided with strong screens for protection against aerial attack. The first ship of the new division is believed to have been in hand for some time at Trieste.

New Torpedo-Boats.—Orders have been given for the construction of 16 sea-going torpedo-boats of a type similar to that of the eight torpedo-boats shown as under construction in the last issue of the Dickinson Return. The new boats will be built at Fiume, and like their predecessors are intended for the replacement of obsolete craft. They are of 250 tons displacement, have engines of 5,000 horse-power to give them a speed of 29 knots, and carry two torpedo tubes and three 7-cm. quick-firing guns. They may be compared with the ex-coastal destroyers in the British Navy, now known as torpedo-boats 1 to 36, but their horse-power exceeds that of the latter by 1,000 units, and they are faster by three knots.

BRAZIL.

The "Rio de Janeiro."—The battleship "Rio de Janeiro," completing at the works of Messrs. Armstrong Whitworth & Co., on the Tyne, may not be completed for the Brazilian Navy if the Finance Committee of the Chamber of Deputies has its way. On September 3rd, the Minister of

Marine stated at a meeting of the committee that the design of the ship did not harmonize with the organization of the fleet. The two completed Dreadnoughts, the "Minas Geraes" and "Sao Paulo," have a displacement of 19,281 tons, and carry twelve 12-in. guns, whereas the "Rio de Janeiro" has a displacement of 27,500 tons and carries fourteen 12-in. guns. The Finance Committee decided that the "Rio de Janeiro" should be sold, and in regard to the question of another vessel to replace her, the Minister of Marine stated that the construction of such a ship could be postponed.

CHINA.

Cruisers Ordered.—Three cruisers are reported to have been ordered to be built in Austria for the Chinese Fleet. The Kreditanstalt, the Laenderbank, and the Niederoesterreichische Eskompte-Gesellschaft have taken over £1,200,000 of 8 per cent. Treasury bonds from the Chinese Government, of an average currency of four years, and the principal object of the loan is to finance the construction of the new vessels, which will be built by the Cantiere Navale at Monfalcone, with armaments from the Skodawerke at Pilsen. No details of the class or design of the cruisers have been published, and it is possible they may be intended for revenue and customs duty.

FRANCE.

An Admiralty Council.—The many changes in the administrative system of the French Navy have now been followed by one of striking importance, which seems likely to have a far-reaching effect if the object of its promoters is realized. It was decided on September 7th to form a *Conseil d'amirauté*, similar in composition and functions to the British Board of Admiralty. It will be composed of the Chief of the General Staff, the Directors of Personnel and Constructive Departments, and the Chief of the Minister of Marine's Cabinet. Like the four naval members of the British Admiralty, these officers will have executive authority, and the Council of Admiralty will therefore differ from the advisory Superior Council of the Navy which has been in existence for some time past. It is intended to overcome the defects of the "water-tight compartment system" under which there have been numerous departments responsible direct to the Minister of Marine, whose duties as a political minister absorb a great part of each day, and allow little or no time for an effective co-ordination of the work of the Admiralty, which is therefore left to the individual departments. The new Council of Admiralty will meet regularly under the presidency of the Minister of Marine, and, according to the *Matin*, is created "to give the Navy the unity and military impulse which are desired."

Battleship Progress.—No less than ten battleships are completing, building, or preparing to build for the French Navy at the present time, excluding the "Courbet" and "Jean Bart," which have just been on trial, and in the former of which the French President travelled to England in June. The "France" and "Paris," of the 1911 programme, are well forward in the private yards at St. Nazaire and La Seyne, and it is hoped to have them ready for trials in March next, although their keels were only laid in November, 1911. The "Lorraine," "Bretagne," and "Provence," of the 1912 programme, of which the first-named was launched on September 30th, will follow them a year later. Of the four

ships of the 1913 programme, the "Languedoc" and "Normandie" were laid down in July last at Bordeaux and St. Nazaire respectively, while the "Gascogne" and "Flandre" are preparing to be laid down at Lorient and Brest dockyards. Lastly, there is the "Vendée," which only awaits Paliamentary sanction for her construction to proceed. Originally intended to be laid down in January, it is now reported that her keel will be laid in March next.

Second Squadron's Cruise.—A two months' cruise, from the middle of August to the middle of October, was arranged for the Second Squadron of the French Fleet in the Mediterranean. The cruise was made in the Atlantic and Channel, and was undertaken partly to afford opportunities for training in seamanship such as are not given in Mediterranean waters, partly to assist recruiting in the ports of the northern provinces, and partly as a concession to public opinion, which has not been uniformly favourable to the concentration in the Mediterranean. The five battleships of the "Patrie" type, the cruisers "Edgar Quinet" and "Jules Ferry," and some torpedo-boats, composed the squadron, and the programme of the cruise included a stay of a week at Cherbourg and a fortnight at Brest. It was officially announced that the appointment of Admiral Boué de Lapeyrère as Commander-in-Chief of the French Fleet, which would have expired on August 5th, had been extended for another year.

GERMANY.

"Prinzregent Luitpold" Commissioned.—The new battleship "Prinzregent Luitpold," the last of the 1910 naval programme, was reported to have been put into commission on August 19th, presumably for trials. She is a sister ship to the "König Albert," whose commissioning on July 31st was noted last month. Both vessels are intended for service in the Third Squadron, which was authorized by the Amendment to the Navy Law passed in May, 1912, and was constituted on December 1st, 1912. At present the squadron includes, with the "König Albert" and "Prinzregent Luitpold," five battleships of the Dreadnought type, and it can be made up to its full strength of eight battleships when the three of the 1911 programme, the "Markgraf," "Grosser Kurfürst," and "König," are completed in the summer of 1914.

New Imperial Yacht.—The new yacht which is under construction for the use of the German Emperor will, it is reported, be ready for launching in the spring of 1914. The provision of a new yacht had become necessary owing to the "Hohenzollern" not being considered satisfactory for the duties required of her in comparison with other Imperial and Royal yachts, and a first instalment of £250,000 was provided for a substitute in the 1913 Navy Estimates. Officially, the vessel is regarded as an auxiliary cruiser, and her plans include provision for an armament of quick-firing guns. In size, she will be longer and broader than the "Hohenzollern," and will be designed for 25 instead of 22 knots. Her complement will number 400 officers and men. The Vulcan yard at Stettin has been entrusted with the building of the new yacht.

Helgoland.—Writing on September 5th, a correspondent of a daily paper at Helgoland gave some particulars of the progress of the defence works in the island. He said that a projecting sea wall had been built half round the island, and a tunnel pierces it from west to north, through which ammunition and other material may be safely taken. There are

searchlights by which any vessel can be discovered at night, and a wireless station. All approaches from the sea are covered by Krupp guns (of 12-in. calibre), which are mounted on disappearing platforms. To the south of the lower part of the island a new island, half as big as Helgoland itself, has been formed, by which shelter is provided for small craft. The correspondent saw in harbour there 41 torpedo-boats and 12 submarines. Magazine and other depôts, and sheds for seaplanes and airships have been erected. The garrison, which six years ago numbered 100, now consists of 1,200 men.

GREECE.

British Naval Mission.—Rear-Admiral Mark E. F. Kerr has been appointed as chief of the new Naval Mission to Greece, and with other members of the mission left London for Athens on September 17th. The mission is composed of officers on the active list of the British Navy, who have been lent for a period of two years. They will be given executive authority in the Greek Navy, in which they will take superior rank and wear Greek uniform. Two officers of the previous advisory mission under Rear-Admiral Tufnell, which returned home in the spring of the year, remain for service under Rear-Admiral Kerr, whose staff includes about three times as many members as that of Rear-Admiral Tufnell. The list of officers and officials in the new mission is as follows:—Rear-Admiral Mark E. F. Kerr; Commanders H. S. Cardale, G. P. Leith, G. A. Wells, R. C. Hamilton, A. L. Strange, and R. G. H. Henderson; Lieutenants S. J. Meyrick, H. D. Gill, and C. P. Vizey, R.N.R.; Engineer-Captain J. H. Watson; Engineer-Commander S. M. G. Bryer; Engineer-Lieutenant G. W. Cannan; Messrs. F. J. Moon and G. Prince, gunners; C. W. Kerridge, naval constructor; and W. B. Stantan, naval store officer. Assistant-Paymaster A. C. Winter will serve as secretary to the mission, and at the request of the Greek Government, Colonel Sir Edward Raban, the late Director of Works and Civil Engineer-in-Chief at the Admiralty, will be attached temporarily for special service.

ITALY.

Warships at Plymouth.—The unprotected cruisers "Amerigo Vespucci" and "Flavio Gioia," which serve as training vessels, paid a visit to Plymouth from September 4th to 10th. They were under the command of Rear-Admiral del Bono, while Captain Giuseppe Notarbartolo commanded the "Amerigo Vespucci," and Captain Giorgio de Pons Roberto the "Flavio Gioia." A large number of cadets were on board, and during the stay of the ships in port the lads were shown over Devonport dockyard and some of the naval establishments. The cruisers coaled and provisioned, after which they proceeded to Brest.

New Commander-in-Chief.—It appears that Vice-Admiral the Duke of the Abruzzi is not to succeed Vice-Admiral Leone Viale as Commander-in-Chief of the Italian Fleet, as at first reported. The Rome correspondent of the *New York Herald* (European edition), in which the original report appeared in July, telegraphed to that journal on September 13th that Admiral Amero d'Aste Stella had been appointed to the post. The Duke of the Abruzzi is to be the new commander of the Second Squadron of the Italian Fleet.

New Cruisers.—A statement was made in the *Politische Correspondenz* in September to the effect that the keels of two "colonial cruisers" had been laid down in the Government dockyard at Castellamare. The vessels were described as being of a new class of armoured cruiser, with a good armament, intended especially for the protection of communications with the colonies, and for the patrolling of North African waters. Since the "San Giorgio" and "San Marco," of 9,680 tons, were completed in 1910, no armoured cruisers have been built for the Italian Navy. Possibly the cruisers referred to are the "Basilicata" and "Campania," which were laid down at Castellamare in August, 1912. They are protected cruisers of 2,550 tons displacement, and an armament of six 4·7-in guns.

JAPAN.

The Situation in China.—In connection with the disturbances in China, two Japanese cruisers were ordered to proceed from Sasebo to Nanking on September 15th. It was at Nanking where the murder of certain Japanese subjects occurred, which brought about some diplomatic communications between the two Governments, but the despatch of cruisers to the Yangtsze was officially stated to be solely a precautionary measure for the protection of Japanese life and property in view of possible danger, and not as a demonstration against the Chinese authorities. A division of four destroyers was also ordered to Nanking on September 16th.

RUSSIA.

Baltic Fleet at Portland.—The Russian Fleet in the Baltic, under the command of Admiral von Essen, has been carrying out a training cruise, and from September 14th to 19th a squadron of 14 vessels made a visit to Portland. The "Rurik" was the flagship of the squadron, and there were also present the battleships "Andrei Pervozvanni," "Imperator Pavel I.," "Slava," and "Tsarevitch," the last-named flying the flag of Vice-Admiral Baron Ferzen; the armoured cruisers "Bayan," "Pallada," "Admiral Makaroff," and "Gromoboi"; the destroyers "Sibirski Stryelok," "General Kondratenko," "Pogranichnik," and "Okhotnik" and the transport "Riga." The squadron was welcomed at Portland by the Fourth Battle Squadron of the British Navy, headed by the "Dreadnought," on board of which Vice-Admiral Sir C. J. Briggs entertained the flag officers and captains. Admiral von Essen also entertained the British officers on board the "Rurik." Hospitality was also afforded by the civil authorities at Weymouth, and the Russian Admiral gave permission for the massed bands of the ships to play at the Kursaal in Alexandra Gardens. Several of the officers and men proceeded to London during the week. The visit of the squadron was made in the course of a training cruise, and was entirely unofficial.

The Destroyer "Novik."—The destroyer "Novik," of 1,200 tons, completed by the Putilov Works at St. Petersburg in 1912, created a record for speed in the Russian Navy during trials on September 3rd. Her mean speed was 37 knots, and her maximum speed over the measured mile, 37·3 knots. This was claimed to be a "world's record." Details concerning the loading of the vessel and the state of the weather, wind and tide were not made known. The "Novik" is of a design supplied by the Vulcan Company, of Stettin, and has turbines and boilers made by that firm in Germany. She is oil-fired, and her designed speed was 36 knots.

TURKEY.

Launch of the "Reshadieh."—The new battleship for the Turkish Navy under construction at the works of Messrs. Vickers, Ltd., at Barrow-in-Furness, was launched on September 3rd, and named the "Reshadieh." The daughter of His Highness Tewfik Pasha, the Turkish Ambassador, Naile Hanoum, performed the launching ceremony by breaking a bottle of rosewater in place of the usual bottle of wine. The "Reshadieh" has a displacement of 23,000 tons; Parsons turbines of 31,000 horse-power, to give her a speed of 21 knots, the furnaces using both oil and coal; ten 13.5-in. guns in her main and sixteen 6-in. guns in her secondary armaments; a main belt of 12-in. armour, tapering to 6 inches at bow and stern, surmounted by strakes of 9-in. and 8-in. armour; and a complete protective deck at water-line level. In displacement, speed and heavy armament, the "Reshadieh" is similar to the British vessels of the "King George V." type, but the latter have sixteen 4-in guns in their anti-torpedo defence battery. Her keel was laid on December 6th, 1911, the order having been received by the syndicate constructing her—which is composed of the firms of Vickers, Armstrong Whitworth, and John Brown—in the previous August. The outbreak of the Balkan War caused a temporary stoppage of work on the vessel, but it is now expected that she will be at sea during 1914. In a speech at the launch, Tewfik Pasha said the new ship would help his country to protect herself more efficaciously, and in consequence help her further progress and welfare. Turkey's ambition was to remain peaceful and to work for the consolidation of her vast territories. He congratulated himself that the contract for the "Reshadieh," made during the time he was Grand Vizier, had been so well placed, and expressed the hope that the building of ships of the new Ottoman Navy would be entrusted to the same three firms.

UNITED STATES.

The Navy Yards.—A report by the Naval Board of Inspection, presided over by Rear-Admiral John R. Edwards, was published in the first week of September, dealing with the dockyards and bases of the United States Navy. The report is not in entire agreement with the policy of the late Secretary of the Navy, Mr. George von L. Meyer, in regard to these establishments, but it suggests that the navy yards at New York and Boston must be abandoned in the future, because they are not capable of development to meet the growing needs of the fleet. The report advocates the enlargement of practically all the existing yards, including the provision of additional docks at Norfolk and Pensacola. The Board considers that Pensacola is the best and only site on the Gulf of Mexico for a first-class yard. It is emphasized that existing yards must on any account be kept up to the highest point of efficiency, as it is marked retrogression to delay the construction of absolutely necessary improvements at any of them, because at some future time some may be abandoned by reason of their proximity to greater yards to be established. When measured from a numerical standpoint, says the report, it might appear that the United States had too many naval stations, but compared with dock and pier development, the character and equipment of industrial shops, or the resources for turning out modern armament expeditiously, then the extent of the establishments is more unsatisfactory than is realized.

THE EUROPEAN CRUISE.—The Navy Department announced on August 28th that the cruise of the Atlantic Fleet to Europe will begin on October 25th, when nine battleships, three colliers, a supply and a hospital ship, will leave Hampton Roads for the Mediterranean. Owing to the mid-winter gales on the return voyage, the order for a destroyer division to accompany the battleships was cancelled. The battleships and the ports they will visit are:—"Wyoming," flying the Commander-in-Chief's flag, Malta, Naples and Villefranche; "Vermont" and "Ohio," Marseilles; "Arkansas" and "Florida," Naples; "Utah" and "Delaware," Villefranche; "Connecticut" and "Kansas," Genoa. The colliers "Orion," "Jason," and "Cyclops," the supply ship "Celtic," and the hospital ship "Solace" will make the fleet entirely self-contained and self-sustaining during the cruise, which will end with the arrival of the ships at their home ports on December 15th. The voyage is not intended to be of an official character, but to afford education and recreation to the enlisted personnel, as well as opportunities of sea training.

SHIPBUILDING PROGRESS.—Of the five battleships actually in hand for the United States Navy, the "New York" and "Texas," authorized in 1910, were 88.2 and 93.6 per cent. complete on September 1st; the "Nevada" and "Oklahoma," of the next year's programme, are building on the stocks, as is also the "Pennsylvania," authorized in 1912. In addition to these five battleships, there is the vessel of the 1913 programme preparing to build at the New York Navy Yard, to which, it is stated, the name of "North Carolina" will be given. There were 11 destroyers under construction in September, of which four, the "Aylwin," "Balch," "Benham," and "Parker," were approaching completion. The others were the "Downes," "O'Brien," "Nicholson," "Winslow," "McDougal," "Cushing," and "Ericsson." Tenders were received in August for the construction of the six destroyers of the current year's programme. The destroyers "Cassin" and "Duncan" were delivered from the contractors during August, and the speed record of the first-named of 30.13 knots was beaten by the "Cummings" on August 27th, when, in a four hours' endurance trial off Rockland, she averaged 30.52 knots. Of the 22 submarines building, the six of the "G." and "H." types are nearly ready for service. "G.4" completed her trials in August, and on September 3rd, "K.1" was launched from the works of the Fore River Co. Guns are to be mounted on board some of the new American submarines, and the Bureau of Ordnance favours a 3-in. weapon, with mechanism similar to the Ehrhardt landing gun.

MILITARY NOTES.

BRITISH EMPIRE.

APPOINTMENTS, PROMOTIONS AND RETIREMENTS.—The following were the chief of these events during September:—

Appointments—Major-General Sir Francis Lloyd, K.C.B., C.V.O., D.S.O., from commanding the Welsh Division Territorial Force, to command the London District, vice Lieut.-General Sir A. E. Codrington,

K.C.V.O., C.B., dated September 3rd, 1913; Colonel and Honorary Major-General Alexander Lyon Emerson to be Colonel the Gloucestershire Regiment, vice Major-General Sir F. Howard, K.C.B., C.M.G., transferred to the Rifle Brigade (The Prince Consort's Own), dated July 19th, 1913. Major-General Sir F. Howard, K.C.B., C.M.G., from the Gloucestershire Regiment, to be Colonel Commandant the Rifle Brigade (The Prince Consort's Own), vice Major-General Sir A. F. Warren, K.C.B., deceased, dated July 19th, 1913.

The Army Exercise.—The operations which came to a close at the end of September were framed under a scheme in accordance with which a force composed of four complete infantry divisions, with a cavalry division, all under the command of Field-Marshal Sir John French, took the field against a skeleton force under Major-General Monro. Sir John French's command was organized in two armies, commanded respectively by General Sir Arthur Paget and Lieut.-General Sir Douglas Haig, each of two divisions. Each army moved on separate and parallel roads, and the exercise was calculated to afford experience to commanders and staffs—which were on a war footing—and to the administrative services, in the movement, deployment and supply of so large a force thus organized. The area within which the operations were conducted lies in the rectangle formed by a line connecting the towns of Oundle, Coventry, Reading and St. Albans.

At the close of the exercises on the 26th, a conference was held before His Majesty the King at Weedon. Field-Marshal Sir John French explained the nature and object of the exercise and criticized the work done in the following address:—

"In opening this Conference, I have first to point out the difference between the army exercise of this year and the manœuvres which have been held in recent years, which, as you know, were designed to test the capabilities of commanders and staffs when opposed to one another.

"This year's army exercise has been designed to afford practice in, and trial of, the working of General Headquarters and Army Headquarters at war establishments; an approach march of one cavalry division and two armies, each army consisting of two divisions and marching on one road; the supply of the above force, the supply services being confined to the same roads as those on which the troops march; cavalry covering the advance of a big force (Brown) against a slightly superior "White" cavalry, reinforced by cyclists, necessitating the support of the "Brown" cavalry by the advanced guard of the main columns; the driving in of the enemy's advanced troops; the deployment of the above force (Brown) for attack; an attack on an enemy in an entrenched position; organization of a pursuit; and breaking off the pursuit and a sudden change of direction.

"In commenting upon the work which has been done I have only time to touch very briefly on the more salient points which have been prominently brought to notice. The usual manœuvre report will appear in due course, and will fully discuss all these subjects in every detail.

"The nature of the exercise and the general and special ideas under which it was necessarily designed afforded little scope for the practice of strategy, but the spreading of various items of intelligence and rumours, some of which were intentionally false and misleading, illustrated the necessity which all commanders in the field are under to arrive at a correct and logical appreciation of any given situation.

"In view of these reports and the cramped nature of the country through which the armies had to march, it might have been wiser to direct the movements of the cavalry in a more westerly direction, and make more extended aeroplane reconnaissances to the west and south-west.

Aircraft at the Exercise.

"As an instance of the necessity for remembering that aeroplane reconnaissance cannot always be depended upon, it may be mentioned that, owing to fog and mist on the morning of the 23rd, aircraft were unable to leave their camp, although information as bearing upon the strategic problem was perhaps more urgently needed on that morning than on any other.

"I may, however, avail myself of this opportunity of saying how highly I appreciate the splendid work done by the Royal Flying Corps throughout these manœuvres. They furnished us with excellent information, and have displayed to the utmost their usual daring and skill.

"The approach marches were well carried out by both armies. March discipline has enormously improved throughout the whole Force, but in this respect I feel bound to give the greatest meed of praise to the 4th Division. During the march of the 22nd the Adjutant-General reported that the provost-marshals and police had hardly shaken down to their work, but that on the 23rd there was a great improvement, and that everything was working well. There has been hardly any falling out on the march and very little sickness.

"The Quartermaster-General reports that the mechanical transport has worked excellently throughout the manœuvres, and, considering the narrow lanes and rough roads over which it had to pass, there has been marvellously little blocking of roads and hardly any breakdown.

"On the 22nd there was a large gap between the 1st and 2nd Divisions of the First Army, and this caused unnecessary delay in bringing the supply columns up to the refilling points.

"The march of the train of the 3rd Division was not properly supervized, and vehicles were not kept closed up to their proper intervals. This delayed the march of the 4th Division, and also, in consequence, that of the supply columns in rear.

"On arrival at the Traveller's Rest, the rendezvous of the 4th Divisional Supply Column, it was found, for some unknown reason, that the baggage sections and supply sections were behind the supply columns. After some delay these baggage and supply sections were passed to the front, but as they could only march at the rate of three miles an hour, the supply sections of the column were delayed in moving to their respective refilling points.

"Time would have been saved if a staff officer of the 4th Division had met the supply column at the rendezvous. It would have been found most probably that the refilling had better taken place at the rendezvous, and thus utilize the time of the unavoidable delay.

"It will be necessary to reconsider the question of supply sections of train moving empty, as sufficient value does not seem to be got out of them.

"It has been noticed in some instances that carts and wagons are overloaded. This must be carefully guarded against.

"I come now to the night of Wednesday, the 24th, when the "Brown" and "White" forces may be fairly considered in full tactical touch with one another.

"I have little to say as to the reconnaissance of the position, the plan of attack, or the taking up of the positions. The staff work appeared to be well done, and the orders issued effectively carried out.

"In the actual execution of the attack, however, on the 25th, I have some important comments to make.

"First, I have to remark that the principles governing the task which is assigned to a holding or containing force were not quite fully observed by the 3rd Division.

"The preliminary advance, the methods adopted to keep the enemy in doubt as to the real point of attack, and the handling of the division were excellently carried out, and it was no doubt owing to the effective nature of this attack that the 1st Division, acting against the enemy's right, were able to occupy Charwelton Hill early in the day and establish a pivot which no doubt secured the success of the 2nd Division on the extreme left in striking the decisive blow.

"So far everything went very well, but it was at this point of the battle that the commander of the 3rd Division did not seem to realize that his attack could not be pushed further without incurring the great danger to which a holding or containing force is always liable if pushed on too far—namely, the danger of being overwhelmed by a powerful counter-attack before it can be effectually supported by the troops making the decisive attack, which were at the moment engaged in effecting a wide turning movement.

"In the case under consideration the enemy was probably confined by the strategic situation to a more or less passive defence, and in no case would probably contemplate a counter-attack on a great scale; but, even so, the premature advance of the 3rd Division would have had the effect of inducing the enemy to evacuate the position before the decisive result looked for in the great turning movement of the First Army could make itself felt.

"The next point which calls for remark is the necessity which lies upon all commanders to remember that each force in an attacking line has its appointed task to fulfil, and there must, therefore, be no demand for outside reinforcements unless it is absolutely impossible to do without them.

"In this connection I think the demand that the 11th Brigade of the 4th Division and some of its artillery should be brought in to assist the 9th Brigade of the 3rd Division on the left of the containing line was unnecessary, for had the 11th Brigade and the artillery been so employed they might have become exhausted in such an operation, which would have materially lessened the effective action of the 4th Division in pursuit.

"The only other point of principal importance upon which I have to remark is the handling of the 2nd Division in the decisive attack on the extreme left.

"It would appear that when the 2nd Division had secured Hellidon Hill and was deployed for the decisive attack, the combination between the two divisions of the First Army might have been better provided for, inasmuch as when the 2nd Division advanced the 1st Division was inclined to hang back.

"It fell to the lot of the 2nd Division to deliver the decisive assault of the battle, and the closest supervision of the field on the part of divisional and brigade commanders was absolutely essential.

"It did not appear to the umpires that this was sufficient at so critical a point. In any case, this is the only way I can account for the disjointed nature of the attack, to which the umpires and all who saw it bear witness. It seems that the division was not sufficiently in hand and did not sufficiently observe the principles which should govern the close attack of infantry on a defended position.

"One result of the faults in the execution of the attack which were noticed was a very important one. Arbury Hill was left in the possession of the enemy up to the end of the battle, and "White" was able to deliver a very effective counter-attack from it, which must have very seriously diminished the effect of the attack of the 2nd Division.

"I have a few comments to make upon the action of the various arms throughout the operation.

"In the attacks on the Windmill hill (Hellidon), and again on the main position at Arbury Hill, dismounted cavalry co-operated on the outer flank of the infantry of the First Army. It appeared that the commanding ground occupied by the "White" force would have enabled the latter to have observed the movements of the cavalry before they dismounted, although the approach was made with care. After dismounting, however, it would have been difficult, if not impossible, to have distinguished the cavalry from the infantry, had it not been for the absence of the packs on the backs of the former.

"These attempts by the cavalry to deceive the enemy were very satisfactory and show that they have appreciated the value of playing this important rôle. I have noticed, however, that in many instances horses are left bunched up in exposed positions much too near the dismounted men. I know the difficulty of concealment, but I think much more attention might still be paid to it. It is the only way of avoiding tremendous losses amongst the horses from hostile artillery fire.

The Artillery and the Infantry.

"As regards the artillery, the preliminary reconnaissances were good, reconnoitring officers being sent forward in good time and well to the front. Guns were deployed generally on a sufficiently wide front. In one instance, on Height 728, a considerable mass of guns were employed in a position whence they might have exercised considerable effect. It is a question for consideration whether the same effect might have been produced with more dispersed guns offering a less target. It may or may not be so, but I am most anxious to accentuate the principle wherever possible of effecting concentration of fire from dispersed batteries.

"The approaches in taking up positions were generally well concealed, and the advantage of acting by surprise was fully recognized. This was especially noticeable in the handling of the artillery of the 3rd Division. It was not noticed that there was much attempt to support the earlier action of the artillery by long-range infantry fire. I draw attention to this as a point of some importance.

"There was generally excellent co-operation between the artillery and the infantry, but it was noticed that when Charwelton Hill and Sharman's Hill were respectively taken by the infantry, the artillery in support was much too long in coming up.

"I was very glad to observe that excellent positions were, as a rule, found for howitzers, and that the principle of their employment in the attack seems to be well understood.

"Turning to the infantry, definite tasks appear to have been clearly assigned to each infantry brigade or other unit except in the case of the 2nd Division, in which the umpires report that definite tasks were not assigned by the divisional commander to each brigade.

"The principle of mutual support appears to be understood, and constant efforts were made to apply it.

"As a rule the importance of utilizing the capabilities of the ground to effect concealment during the advance was realized. In some cases troops took up fire positions in front of thick hedges, probably owing to the difficulties of firing through them, but this was done occasionally where the hedges were low enough to admit of men firing over them in a standing position, and speaking generally it appeared that more use might sometimes have been made of the hedges for purposes of concealment. No doubt the explanation is the great difficulty of crossing these hedges except through gaps, and the delay and fatigue involved in constantly filing through gaps and extending again on the other side to open fire.

"Ammunition columns were not represented, nor were the S.A.A. carts with battalions. The pack animals for S.A.A. accompanied battalions and appeared to be worked well forward under cover. Instances were observed, however, where reinforcements failed to bring up extra ammunition to the firing line, which they might apparently have obtained from these pack animals on the way.

"In the criticisms which I have made, your Majesty, my only wish has been to direct your attention to what I consider to be the most important points for consideration which these manœuvres have elicited. I do not in any sense impute blame. On the contrary, I think that on the whole the exercise as laid down and the orders as issued were admirably carried out. We are all here to learn, and I feel the necessity of doing so myself quite as much as anyone else.

"I am most grateful for the energy and skill with which I have been assisted in carrying out this exercise by the General Staff, commanders of armies, divisions, and brigades, and all who have assisted them. The discipline, conduct, and bearing of the troops, their marching powers, and their cheerful endurance under hardship and exposure are beyond all praise, and it is most satisfactory to observe the same steady and marked improvement and progress in the Field Army which I have been able to report for some years past."

His Majesty the King then said:—

"It has given me much pleasure to attend the operations which conclude the collective training for the year, and I have listened with interest to what has been said at this conference. The C.I.G.S. and those who have worked under his orders deserve great credit for having planned a form of exercise which has entailed the employment of a larger force under one command than has ever before been practised in England, and one which has furnished valuable instruction in a variety of directions which would not have been possible without it. It has, for instance, afforded a test of the organization of the various branches of the Staff, and the services of maintenance, and has illustrated how greatly the

operations of a large force are dependent on administrative efficiency and good march discipline. It has also served to develop that common understanding and ready co-operation as between the different arms, units, and formations which are so essential to success in the field.

"The lessons learned in this respect must have been particularly numerous and valuable, because of the close nature of the country and the consequent difficulty of intercommunication, and of obtaining information.

"I am glad to notice a considerable increase in the number of aircraft as compared with last year, and to know that efforts are being made to widen the opportunities of the Royal Flying Corps and to enable it to gain experience in working in close connection with mobile troops. It is a great pleasure to me to see so many Territorial units taking part in the operations, working side by side with their comrades of the Regular Army, and I am delighted to welcome the officers of the Forces of my Oversea Dominions, who I trust have derived both pleasure and profit from their association with the troops of the Mother Country. From what I have observed during the operations and on other occasions, I am convinced that great strides are being made in the practical training of all ranks, and I have been greatly impressed by the keenness displayed both in barracks and in the field individually and collectively to achieve a high standard of professional skill.

"I am gratified to know that this is so, for I need hardly remind you that the demands of modern war are such that the necessary degree of efficiency can only be attained by constant study on the part of officers and by strenuous service, loyalty to each other, and devotion to duty on the part of all.

"I feel satisfied that these will be forthcoming, and I am confident that under the able guidance of the C.I.G.S. you will take to heart the lessons you have learned during the last few days, and continue to make that consistent progress to which each succeeding year bears witness.

"In taking leave of you I wish to say that I shall look forward to seeing my troops on many future occasions, and you may rest assured that I take a deep interest in all that concerns their welfare and work."

Infantry Organization.—A special Army Order issued from the War Office on September 16th authorizes the adoption, as from October 1st, of the four-company organization in battalions of the Foot Guards and Infantry of the Line. The text of the Order is as follows:—

War Office, Sept. 16th, 1913.

Organization of an Infantry Battalion.

1. A four-company organization will be adopted in battalions of the Foot Guards, and in all Regular battalions of Infantry of the Line serving at Home or in the Colonies, with effect from October 1st, 1913.

2. The non-commissioned officers and men of the machine-gun section, and the personnel, shown in the attached appendices, will be distributed for discipline and administration in peace amongst the four companies, under regulations to be issued later.

3. Each company will be commanded by a mounted major or a mounted captain, with a captain as second-in-command.

4. A company will be divided into four platoons, each commanded by a subaltern, in so far as the number of subalterns available will allow.

When a subaltern is not available to command, his place should be taken by a senior non-commissioned officer, who should usually be the senior non-commissioned officer belonging to the same platoon.

Each platoon will be sub-divided under regulations to be issued later.

5. In each company there will be eventually a company sergeant-major and a company quartermaster-sergeant. For the present the duties of these appointments will be carried out by the existing colour-sergeants.

6. The companies will be designated by the letters A, B, C, and D. The platoons will be numbered consecutively throughout the battalion from 1 to 16.

7. Further regulations and amendments to war establishments and peace establishments will be published in due course.

By command of the Army Council,

E. W. D. Ward.

Appendices to the Order state that the following warrant officers, non-commissioned officers and men, will be distributed for discipline and administration amongst the four companies:—

Foot Guards.—Sergeant-major, quartermaster-sergeant, colour-sergeant instructor in musketry, colour-sergeants (drill sergeants), orderly-room sergeant, orderly-room clerk, sergeant-drummer, sergeant-cook, sergeant-tailor, sergeant-shoemaker, pioneer-sergeant, transport-sergeant, signalling-sergeant, officers' mess-sergeant, signalling-corporal, transport-drivers, pioneers, signallers, boys.

Infantry of the Line.—Sergeant-major, bandmaster, quartermaster-sergeant, colour sergeant-instructor in musketry (*a*), orderly-room sergeant, orderly-room clerk, sergeant-drummer, sergeant-cook, sergeant-tailor, sergeant-shoemaker, pioneer-sergeant, band-sergeant, transport-sergeant, signalling-sergeant, officers' mess-sergeant, band corporal, signalling corporal, transport-drivers, pioneers, signallers, bandsmen, boys.

(*a*) For a battalion at home.

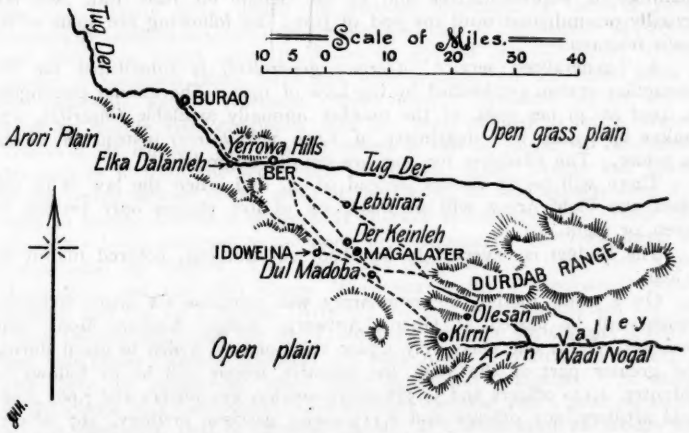
Somaliland.

Particulars are now to hand of the action in which the Somaliland Camel Constabulary was engaged on August 9th with a Dervish raiding party at Magalayer, some 30 miles south-east of Burao. This last-named place had been in occupation as an advanced post by the Camel Constabulary since January 16th last. It would appear that since early in June there had been signs of a renewal of Dervish activity in this neighbourhood; the wisdom of retaining the Constabulary at Burao had been questioned; and Mr. Archer, the Acting Commissioner, had proceeded to Burao, where he arrived on August 6th, in order to consult Mr. Corfield, the commandant, and come to a decision on the spot. Mr. Archer was accompanied by Captain Summers, 26th Cavalry, attached to the Indian Contingent, King's African Rifles. On the 8th, reports coming in that the Dervishes were severely raiding the friendlies between Burao and Idoweina, the Acting Commissioner directed Mr. Corfield to move out with a strong reconnoitring party in the direction of Ber—18 miles south-east of Burao (Idoweina is 15 miles south-by-east of Ber). This reconnaissance, which left Burao at 3 p.m. on the 8th, was accompanied by Captain Summers, but it is clear that this officer was merely sent in order

to be able to advise Mr. Archer on the military situation, and that it was expressly stipulated that he should not interfere in any way with Mr. Corfield's dispositions. At 9 p.m. the Constabulary—strength : 3 Europeans and 116 native ranks—reached Der Keinleh, four miles from Idoweina, having heard near Ber that a large Dervish raiding party was in the neighbourhood and was making for the water holes at Idoweina : the strength of this force was estimated by friendly natives, whose estimate was subsequently found to be tolerably correct, at 2,000 riflemen and 150 horse. Mr. Corfield now decided to engage this force, taking up such a position as would enable him to intercept its line of retreat on the morrow. There can be no doubt that not only was such action extremely hazardous with the small force of Constabulary at his disposal, but that it was directly opposed to Mr. Corfield's instructions, which forbade the employment of the Camel Corps against any Dervish parties, even where the danger was insignificant and success more or less certain. On the present occasion, moreover, Captain Summers entered a protest against the action the commandant proposed to take.

SKETCH MAP SHOWING POSITION OF MAGALAYER.

(ACTION FOUGHT AUGUST 9TH, 1913).



The night of the 8th passed quietly, and the Camel Corps moved out early next morning to cut the Dervish line of retreat. At 6.45, however, the Constabulary was attacked by a very large force in thick bush, and fighting continued for five hours, the enemy advancing eight or nine times to the attack and making three desperate assaults on the line of Constabulary. Soon after midday the Dervishes, having lost very heavily and their ammunition supply being exhausted, drew off, and Mr. Dunn, the assistant commandant, was able to fall back on the wells at Idoweina, and thence on Gombur Magag, 18 miles from Burao, where the party was met by Mr. Archer with a small supporting force, composed of 20 men of the Indian Contingent and some friendlies. The losses of the Constabulary were Mr. Corfield and 32 killed, Captain Summers and 16 men wounded. At the end of the action there were only 28 unwounded men remaining

in the zariba, some of the Constabulary having deserted during the engagement, but Mr. Dunn brought in all his wounded, the maxim, rifles and ammunition.

Burao was evacuated on the 11th, and our advanced post in this direction is now Sheikh, where the fort is occupied by 130 men of the Indian Contingent under a British officer. On August 12th reinforcements to the number of 300 troops arrived at Berbera from Aden.

AUSTRIA-HUNGARY.

MANŒUVRES.—The manœuvres of the Austro-Hungarian Army began on September 14th, under the direction of the Grand Duke Frantz Ferdinand. The area selected for the operations was in Bohemia; the opposing commanders being General von Brudermann and General von Auffenberg, formerly Minister of War. Some 120 infantry battalions and 60 squadrons of cavalry took part. The operations came somewhat unexpectedly to an end on the night of the 15th, with the success of the Red Army under General von Auffenberg.

BELGIUM.

ORGANIZATION.—The new Military Law passed on May 28th by the Chamber of Representatives and by the Senate on June 19th, was not actually promulgated until the end of July; the following are some of its main features:—

A "generalized service" (*service généralisé*) is substituted for the exemption system established by the Law of 1909. The annual contingent is fixed at 49 per cent. of the number annually available (*inscrits*), and makes up 33,000 men (exclusive of 2,000 *volontaires*) instead of 21,000 as before. The effectives for war are greatly augmented.

There will be 13 classes instead of 15, and when the law is in full effect the Field Army will be made up of five classes only instead of seven or eight.

The Budget is expected to be about 285 millions, covered mainly by a loan.

On a peace footing the new Army will comprise six army divisions, which will be posted at Ghent, Antwerp, Liége, Namur, Mons, and Brussels. With one class only under the Colours, which is usual during the greater part of the year, the effective troops will be as follows:—Infantry, 2,110 officers and 31,533 men; cavalry, 339 officers and 7,661 men; field artillery, 501 officers and 8,113 men; garrison artillery, 267 officers and 4,050 men; engineers, 187 officers and 2,363 men; transport, 119 officers and 643 men. The effective strength of a division will be 6,500 men for each of four and more than 8,000 for each of the other two.

On a war footing the Field Army will consist of six divisions and one cavalry division. Four divisions will make a total of 100,000 men, and two divisions (Liége and Namur) of 32,000 men each will make a total of 64,000. This makes a Field Army with a total effective, including the cavalry division, of 170,000 men.

It must, however, be noticed that these numbers do not include the reserve of the Field Army, which will be a Militia intended to fill up losses suffered by the units on the march and in battle. This included, the actual effective of the future Field Army may be estimated at 200,000 men.

DENMARK.

Inventions.—The inventor of the Aasen hand-grenade has lately constructed a tube and stand by means of which these grenades can be thrown to a distance of 750 metres. The tube weighs about 10 kg., with a diameter of 8.75 cm., fixed on a tripod. The propellant is contained in the breech mechanism, which is fixed on the outside of the tube immediately above the chamber which receives the grenade. The closing of the breech automatically closes the locking gear of the tube. The tripod and tube can be taken to pieces for transport and carried by one man.

FRANCE.

Manœuvres.—During September, the 1st, 2nd, 6th, 7th and 8th Cavalry Divisions were trained first alone and then in manœuvres with different army corps, while the 3rd, 4th and 5th Cavalry Divisions, with the 6th Cavalry Brigade, formed part of a great cavalry concentration at Sissonne from September 3rd to 11th, and were manœuvred along the Belgian frontier and the Ardennes, under the personal direction of General Sordet, Inspector of Cavalry.

The grand manœuvres of all arms took place in the south-west of France between the Garonne and the Baïse, the concentration commencing on September 4th, the manœuvres themselves lasting from the 11th to the 17th. These were under the personal direction of General Joffre, assisted by General de Castelnau, *premier sous-chef de l'état major de l'armée*, and they were based upon the following general idea:—"Early in September a Southern (Red) force has been engaged on the north bank of the Dordogne with a Northern (Blue) Army. Menaced on its eastern flank by hostile reinforcements, Red has been obliged to retire towards Toulouse, its capital, and Castres, where it can be joined by new bodies drawing to it from the south and south-east. Blue, having lost heavily in the recent actions to the north of the Dordogne, and experiencing difficulty in supply, has been temporarily checked in its advance. Fresh Blue forces are being collected to the south of Bordeaux." The Blue force was commanded by General Pau, and was composed of the 12th Corps (Limoges), and the 18th Corps (Bordeaux), with a provisional cavalry brigade and the 1st Colonial Division; the Red Army comprised the 16th Corps (Montpellier), and the 17th (Toulouse), with the 6th Cavalry Division, and was under General Chomer. To each Army was attached a dirigible and three air squadrons, based upon Agen and Toulouse. The supply of the troops was carried out as on service: General Pau's *gare regulatrice* was at Bordeaux, that of General Chomer at Carcassone; the troops were fed entirely on chilled meat from depôts at Marseilles and Lyons: the numbers in ration were about 120,000.

New Heavy Field Gun.—Up to the present the French artillery has had no more powerful gun than the 75 mm. field gun—except the very heavy and not particularly mobile Rimailho of 155 mm.—to oppose to the field guns of the German Army, which has two types of heavy guns, besides the 77 mm. field gun, to accompany the Field Army. The French authorities are now proceeding as rapidly as possible with the construction of a number of 105 mm. guns, of which it is proposed that each army corps shall have two groups, each of four guns. It is expected that the increased number of effectives realized by the introduction of the three-year period of service will provide

for a new organization of the field artillery without interfering in any way with the existing field batteries. The new 105 mm. is a long gun of great range, effective up to nine or ten kilometres. Its general issue is expected to commence either this month or in November, but some of these guns made their appearance in the manœuvres of this autumn in South-West France.

GERMANY.

Manœuvres.—The Kaisermanöver were held this year in Silesia, and commenced on September 8th. Two army corps took part, the 6th Corps from Posen forming a Red Army under Lieut.-General von Pritzelwitz, while the 5th Corps (Blue), from Breslau, was commanded by General von Strautz. These corps represented the central portions of two opposing armies, the troops on their right and left being denoted by flags and small units from other corps. The infantry regiments were increased above their peace establishment by the inclusion of reservists. The general idea was as follows:—"A Red Army of invasion consisting of six army corps is moving across the Oder into Silesia. On the evening of the 6th its main body has arrived at the line Strehlen—Breslau—Patschkau, its cavalry reaching on the 7th the line Koberwitz—Schweidnitz—Friedland, and driving back Blue's covering troops behind the Striegauer Wasser. Behind these covering troops is Blue's main Army of five corps, covering a front from Löwenberg to Lüben and the Oder." On each side were two Zeppelins and three squadrons each of six aeroplanes; the latest model of gun for engaging aircraft was also in the field; the transport and supply was worked by a very large fleet of motor lorries, the same type of vehicle being used for carrying Red's cavalry divisional infantry.

Machine-Gun Training.—In order to ensure uniformity of instruction in the employment of machine-guns in the field, three courses of instruction, each lasting two to three weeks, have been arranged for, and these will be attended by 110 colonels and staff officers, 332 majors and captains of infantry and cavalry, 2,800 subalterns and N.C.O's of infantry; further 40 captains and subalterns and 44 N.C.O's of infantry are to be put through a course of firing at the school of instruction.

Light-Shell.—According to the *Mittheilungen über Gegenstände des Artillerie und Genie-Wesens,* experiments are to be made with a light-shell fitted with a parachute and fired from a short rifle of special pattern. Fired at an angle of 45° it bursts at a height of about 450 feet, when the parachute opens and the light gradually descends—lasting some 40 seconds. The light thrown off is enough to allow print to be read at 200 metres. The shell weighs 160 gr., the rifle about 2½ kg.

HOLLAND.

New Fortifications.—The decision to build a fort at Flushing, to modernize others, and to add to the offensive capacities of the forts at the Hook was come to in the Upper House in June last by 21 votes to 9. The main armament of these forts will be 28 cm. guns in armoured cupolas, and the order for the guns has been given to Krupp.

ITALY.

Armoured Motors.—Two different firms have constructed two light armoured motor cars for use in Libya, and these have recently been subjected to interesting experiments in Milan. Each of these mounts two

machine-guns; the armour protection making them immune against infantry rifle fire. The weight, fully armed and equipped, is 3,500 kg., the engine has 50 h.p. and develops a speed of 50-60 km. per hour. The guns work in a revolving structure. The crew consists of a driver and four gunners, each armed with rifles. The cars are painted the one yellow for employment in the desert, the other grey for use in the hills.

COLONIAL GARRISONS.—The future colonial garrison of Libya will be made up of local troops as follows:—Regulars: 14 battalions infantry, six squadrons cavalry, six mountain batteries; Special: three squadrons meharists and four light companies of all arms; each infantry battalion—four companies and one machine-gun section=800; each squadron—100 men; each battery—four guns, 200 men; light companies—one mountain battery section, one machine-gun section, one telegraph section, 150 meharists, 100 infantry.

RUSSIA.

GENERAL STAFF OFFICERS.—This year 60 of the officers completing the course at the Imperial Military Academy were posted direct to the General Staff. Usually officers have to rejoin a unit for a period before being posted to the General Staff.

COMMAND OF INFANTRY REGIMENTS.—A.O. 262 alters the order in which appointments to the command of infantry regiments are made. Vacancies are now filled in a regularly recurring series as follows:—One from the Guard, three from the General Staff, four from the Line, and at the end of every third of these series one vacancy is filled by an officer of another branch of the service. The new order gives an extra vacancy in each series to the General Staff.

CONFIDENTIAL REPORTS.—A.O. 88/1913 introduces new Regulations for the "Supreme Committee on Confidential Reports." This committee, presided over by the Minister for War, and with his Deputy, the Inspectors-General, Chiefs of the General and Headquarters Staffs among its members, will report on the fitness for promotion of all higher commanders, including deputy commanders of military districts, commanders of army corps, divisions, chiefs of district staffs, etc., etc. The reports will be presented to the Emperor.

ATTACHMENT OF MILITARY OFFICERS TO THE FLEET.—A new departure was made this summer by the attachment of 32 officers of the Army to ships of the Baltic, Black Sea, and Far Eastern Fleets; 17 officers to the Baltic, 11 to the Black Sea, and four to the Far Eastern Fleet. The period of attachment is three months.

NEW ARTILLERY SCHOOL.—The new Artillery School at Odessa was opened in September, when about 100 cadets were received. The school is intended mainly to train officers for heavy and fortress artillery.

NEW GUN FACTORY.—The contract for the new gun factory at Tsaritsin has, it is reported, been given to Messrs. Vickers, who will undertake to construct it within two years.

TRAINING OF RESERVISTS, 1913.—The Ministry for War announced that the following were to attend six weeks' training:—

A. 1st instructional period—(i) Ensigns who served in 1911-1912 and passed to the reserve in 1912.

(ii) Short term volunteers and volunteers of first-class education passed to the reserve in 1912, and conscripts of first-class education of 1908 category.

B. 2nd instructional period—(i) Ensigns who served in 1905-1906 and passed to the reserve in 1906.

(ii) Short term volunteers and volunteers of first-class education who passed to the reserve in 1906, and conscripts of first-class education of 1906 category.

Short Term Volunteers.—By the new conscription law which came into force in 1913 the period of enlistment for "short-term volunteers" was fixed between the dates June 28th to July 13th, in spite of the objections of the military authorities. On the ground that the dates fixed would seriously interfere with the training of the troops, the War Minister introduced a Bill amending the law so that these volunteers should join in December. The Duma is reported to have refused to consider the Bill in the recent session.

Fuel.—Experiments have been made in Turkestan with a new artificial fuel for cooking in the Army. With this fuel dinners for 556 men were cooked in four hours at a cost of 47 kopeks (1s. 1d.) as against the usual six hours costing 3s. 3d. to 4s. 4d.

Recruiting.—The annual contingent for 1913 was fixed at 455,000 men as in 1912, but owing to the new Conscription Law, it is expected that there will be less wastage, and that about 30,000 men more will be secured.

The Minister of War is taking steps to change the period at which short term volunteers join the Army. The Duma objected to the original proposal that short term volunteers should join with other recruits in the winter, and insisted on their joining in July at the end of the university term. This has been found to be a very impracticable arrangement.

Special Naval and Military Credits.—At a meeting of the Duma on June 17, the first half of the evening session was held with closed doors and, according to the *Novoe Vremya*, credits were assigned for the following naval and military proposals, arranged in order of their urgency:—

(*a*) Trial mobilizations; (*b*) re-organization of certain Cossack regiments; (*c*) re-organization of certain other units; (*d*) formation of certain special units; (*e*) a special credit of £17,000 annually, commencing from 1913, to the War Ministry for secret expenses; (*f*) military mechanical transport; (*g*) the Revel fortifications; (*h*) harbour works and fortifications in connection with the ship-building programme; (*i*) naval aviation stations; (*j*) new equipment for Government metal factories.

New Railways.—Work has been commenced on the construction of the Altai railway, from Barnaul to Semipalatinsk. The Duma has passed without discussion the Bill for the construction by the State of the Kharkov—Kherson line. A new railway bridge over the Volga has been opened at Sviajsk, near Kazan.

Wireless Telegraphs.—The Russian Department of Posts and Telegraphs recently suggested the establishment of direct wireless telegraph communication between Russia and Great Britain, and it is probable that a station suitable for this purpose will be erected near Aberdeen.

A Press report stated that the long-distance wireless telegraph station at Riga was to be ready shortly, and would have a radius of 2,000 miles.

UNITED STATES.

HAWAII.—The latest plans for the military occupation of the Hawaiian Islands contemplate an ultimate aggregate force of 15,000 men at a cost of $8,732,343. The total mobile garrison will consist of six regiments of infantry, one regiment of cavalry, one regiment of field artillery, one battalion of heavy field artillery, one company of engineers, with an ultimate limit of one battalion of three companies, one field company signal troops, one telegraph company and one aeronautical detachment, two field ambulance companies and 13 companies of coast artillery, of which three companies are for heavy siege artillery, included in the land defences. All units to be at full strength.

These troops are to be placed as follows:—

Schofield Barracks.—Two regiments infantry, one regiment cavalry, one regiment of field artillery, one battalion heavy artillery, one field signal company, one telegraph company, one aeronautical detachment and two field ambulances.

Fort Shafter.—Four regiments infantry.

Fort Ruger.—Three companies coast artillery.

Fort de Russy.—Two companies coast artillery.

Fort Kamehamcha.—Eight companies coast artillery.

The report of the Board of Officers under Brig.-General M. M. Macomb, assembled to report upon the defence of the islands, recommends additions to the defences at Diamond Head, including one battery of four 12-inch mortars, two 6-inch guns and six 3-inch guns for primary land defence. The Board also recommends the location of batteries near the entrance to Pearl Harbour.

From a combined military and naval standpoint, it appears necessary that the island of Oahu should be made an impregnable fortress to serve as a naval base against attack on the Pacific coast and the western end of the Panama Canal. The island of Oahu is 4,721 miles from Panama.

AERONAUTICAL NOTES.

BRITISH EMPIRE.

MEMORANDUM ON NAVAL AND MILITARY AVIATION.

(Continued from the September number, page 1276).

THE NAVAL WING OF THE ROYAL FLYING CORPS.

GENERAL PROGRESS.—31. The organization of the Naval Wing has proceeded satisfactorily. Some slight alteration of pay is found to be necessary owing to the pay of some of the higher naval ratings who are not trained as pilots being less than it would be if the men were serving in other branches of the Navy. This matter is receiving consideration. Questions as to the risk pay to be paid to men who are not pilots, but who are taken up in machines for observation, wireless telegraphy, gunnery, and other duties are under consideration.

32. The Naval Flying School at Eastchurch has been utilized for training most of the personnel for the Naval Wing, both in elementary and advanced flying.

It is also used as a depôt for the trained pilots, pending their disposal to the various air stations which are being established round the coast.

33. The total of the numbers trained for all branches of the Naval Wing is 184, and 114 more are now under training.

34. The staff originally recommended has been found sufficient to carry out the training at Eastchurch.

35. A captain has been appointed to command His Majesty's ship "Hermes" and for naval air service duties.

The "Hermes" has been fitted to carry hydro-aeroplanes for experimental purposes.

36. Five large double aeroplane sheds have been erected at Eastchurch, and, in addition, some sheds have been rented from private owners. Permanent residential quarters have also been built at the Naval Flying School.

37. Owing to the increasing importance of hydro-aeroplanes, it has been found necessary to establish a hydro-aeroplane station on the Isle of Grain in the Medway.

38. In addition to this station, sheds are erected or are in course of erection at Calshot, Harwich, Yarmouth, and Rosyth, and negotiations are in progress for the establishment of further sheds in other localities.

39. Five motor cars and one motor lorry have been purchased for transport work; men have been sent to the Naval Motor School at Portsmouth to be trained as drivers. Steps are also being taken to acquire a number of motor boats for use at the various hydro-aeroplane stations.

40. A large amount of experimental work has been carried out in connection with the offensive and defensive qualities of aeroplanes.

41. The manufacture of aeroplane and airship engines is being carefully watched and inspections made from time to time. Four naval engineer officers have been specially selected for this work.

42. Attention has been paid to the question of acceptance and construction of naval aircraft. A system of close inspection whilst under construction, by Admiralty inspectors, has been instituted.

The Airships of the Royal Flying Corps.

43. There are six airships varying in size from 20,000 to 280,000 cubic feet capacity now in the possession of the Royal Flying Corps, and one is being built at Farnborough. Steps have been taken, with the sanction of the Government, to make a considerable increase in the number of airships.

The Military Wing of the Royal Flying Corps.

Organization.—44. The Military Wing of the Royal Flying Corps came into existence on May 13th, 1912, on which date the existing Air Battalion and its Reserve were absorbed into it.

45. The Headquarters and the Flying Depôt Line of Communication were established at Farnborough. The squadrons composing the Military Wing are being formed and distributed, as shown in the table below:—

Unit.	Date of formation.	Peace station.
Wing Headquarters	1912	South Farnborough.
1st squadron (airships and kites) ...	,,	,, ,,
2nd ,, (aeroplanes)	,,	Montrose.
3rd ,, ,, ...	,,	Netheravon.
4th ,, ,, ...	,,	South Farnborough.
5th ,, ,, ...	1913	,, ,,

Transport.—46. Forty cars and lorries to provide the necessary transport for these squadrons have already been delivered, and 70 more are on order.

Personnel.—47. Of the 182 flyers proposed in the original scheme as the establishment for the Military Wing, 68 officers have qualified, and one officer and 26 men are under training.

48. The position in regard to the recruiting of the Military Wing is as follows:—

Transferred from Air Battalion	88
Transferred from the Regular Army exclusive of the Air Battalion	207
Directly enlisted	387
Total	682

Training.—49. Owing to the Central Flying School being unable to undertake all the elementary training at present (*see* paragraph 16), a certain number of officers have been trained with the Military Wing, and have gone to the Central Flying School for examination.

50. A large amount of experimental work has been carried out in connection with the offensive and defensive qualities of aeroplanes.

51. An account of the work done by the Royal Flying Corps during Army manœuvres, 1912, will be found in paragraph 63 *et seq.*

The Military Aeroplane Competition.—52. The military aeroplane competition took place at Larkhill, Salisbury Plain, during August, 1912. A report on this has already been published. [Cd. 6826].

The Royal Aircraft Factory.

53. The Army Aircraft Factory, which was already in existence at Farnborough, was re-named the Royal Aircraft Factory on the establishment of the Royal Flying Corps.

Experimental Work at the Royal Aircraft Factory.—54. The part of the work at Farnborough, which is essentially of an experimental character, is carried on in close relation with the testing of models at the National Physical Laboratory.

The technical work carried out at the factory may be classified under the following heads:—

(i) Design, relating to (*a*) airships, and equipment, (*b*) aeroplanes, (*c*) propellers.
(ii) Physical investigation, instrument design, stability, and gun measurements, aeroplane gun trials.
(iii) Researches on fabrics, dopes, fuel, and oil.
(iv) Researches on metals.
(v) Experiments on engines and design of engines.
(vi) Inspection of Royal Aircraft Factory's and private firms' construction.
(vii) Testing all aircraft except those bought under aeroplane competition.
(viii) Flying, bomb dropping, photography, and trials with machine guns.
(ix) Keeping the main aeronautical and engineering store.
(x) The measurements of gliding angle, speed, etc., at the military aeroplane trials.

Airships.—55. Considerable progress has been made in connection with the designing of airships.

56. The airship "Delta," of 160,000 cubic feet capacity, was completed in 1912. This shows a great advance in size since 1909, when the airship "Baby," of 23,000 cubic feet, was enlarged to the "Beta" of 33,000 cubic feet, the "Gamma," of 80,000 cubic feet, being also in process of construction at that time.

Aeroplanes.—57. A special study has been made at the Royal Aircraft Factory of the design of aeroplanes having a wide range of speed.

58. The designs have been worked out to meet the requirements of the different classes of aeroplane suitable for warlike purposes.

British and Foreign Engines.—59. In the previous report considerable stress was laid on the importance of obtaining a perfectly satisfactory engine for aeroplanes; and, in order to keep abreast of all practical developments in the aeroplane industry in all parts of the world, it was proposed to approach certain engine builders at home and abroad with the view of obtaining engines for test. Action in this direction has been taken.

Improvements in the South Farnborough Aerodrome.—60. The passage which the sub-committee recommended should be cleared from Laffan's Plain to the Royal Aircraft Factory, via Ball Hill, is in process of being made.

The Air Committee.

61. The Air Committee, which is a permanent sub-committee of the Committee of Imperial Defence, was established in order to co-ordinate the work of the various Departments which are affected by the aerial policy of the Government.

In addition to the meetings of the whole Air Committee, a large number of sub-committee meetings are held.

62. Questions are referred to the Committee by the Committee of Imperial Defence and the Departments of State. In addition, the individual members of the Committee are invited to bring forward for informal discussion any matter which they consider likely to prove of interest or advantage. In this matter the Committee provides convenient facilities for conference in all branches of aerial development.

Employment of the Royal Flying Corps in Manœuvres, 1912.

Naval Manœuvres.—63. Naval aircraft were present at the naval review which preceded the naval manœuvres of 1912, and one hydro-aeroplane took part in the naval manœuvres.

Army Manœuvres.—64. During the army manœuvres, owing to the use of monoplanes having been temporarily discontinued on account of accidents which had occurred, it was only possible to employ one squadron, composed of seven biplanes on each side, including a flight of three from the Naval Wing.

65. The airships "Beta" and "Gamma" were also employed, one on each side, a proportion of the naval crews under training being used.

66. In spite of the temporary nature of the aircraft organization, a great deal of information was collected for the commander of each side.

67. Only trifling damages to the equipment were sustained during the manœuvres, but the weather was generally favourable.

68. The officer commanding the Military Wing stated that he thought it probable that no aeroplanes or engines, and few pilots and observers, would stand the strain of more than three months' active service without relief.

69. The following points brought out during the manœuvres are of interest:—

Night Work.—No night work was carried out by aeroplanes. The airship "Gamma" made one night flight, with the object of gaining experience in reconnaissance and bomb-dropping. After carrying out the exercises successfully she failed to land at her field base on her return, and rather than risk a landing at an unknown spot she remained in the air until after dawn.

Method of Communication.—The great advantage of fitting a wireless telegraphy apparatus in aircraft was shown by the work accomplished by the airship "Gamma."

A considerable advance has been made in the methods of dropping messages.

The necessity for providing motor cyclists for the conveyance of messages was clearly shown, as it was often difficult for machines to land close to headquarters.

Notes on Reconnaissance.—The necessity for a high standard of military training in the case of observing officers for both strategical and tactical reconnaissance was clearly indicated; untrained observers are quite useless.

These observers should be kept in possession by the General Staff of all information gained and of movements intended. Moreover, staff officers, skilled in observing, should occasionally go up themselves.

Aircraft should save cavalry much unnecessary work, but can in no way replace this arm of the Service.

Concealment of Troops.—The introduction of aircraft into land warfare will probably lead to a largely increased number of movements being made by night and to attempted concealment by day.

Troops halted in open country should adopt loose formations.

It is impossible to hear the report of guns, but the smoke or flame of discharge is plainly visible.

Observation from Aircraft.—Difficulty was experienced in discovering whether trenches were occupied or not.

Bivouacs were easily detected.

It will probably be difficult to estimate the strength of troops occupying towns in billets.

Artillery can generally be identified both on the march and in bivouac.

Recent Legislation Regarding the Control of Aircraft.

70. An Act has been passed which amends "The Aerial Navigation Act, 1911," in such manner as to enable a Secretary of State to make orders prohibiting the navigation of aircraft over prescribed areas for purposes of the defence or safety of the realm, and to compel compliance when an aircraft disobeys such signals.

71. The necessary provision, to enable aircraft to be requisitioned in time of war, has been made in "The Army (Annual) Act, 1913."

FRANCE.

Seaplanes.—M. Blériot has invented a means of allowing seaplanes to perch on a ship without having to settle on a rough sea first. A wire rope is suspended from the bow to the stern of the ship and the aeroplane is fitted with a special catch to enable it to hook itself on to the wire rope which it slides along for 40 or 50 feet and then comes to rest. In restarting, the seaplane runs along the wire rope till sufficient speed is attained, and then it releases itself, drops a few feet to get clear of the cable, and starts off on its free flight.

The *Matin* reports that it had been decided to provide all military aeroplanes with armour, and experiments to this end are being now carried out. It is stated that an aeroplane is vulnerable unless at an altitude of more than 4,000 feet, while satisfactory observation renders it necessary to be within 2,500 feet of the earth's surface.

The following tests have been laid down by General Hirschauer, the Inspector of Military Aviation, required from those who wish to obtain a military pilot's certificate; these come into force in the new year:—

1. The completion of a flight of at least one hour at an altitude of 1,000 metres.

2. A landing *en vol plané*, the engine cut off, from an altitude of at least 500 metres, and to be effected within less than 200 metres of a spot previously noted and without re-starting the engine.

3. Passing the theoretical examination laid down in the regulations.

4. Passing three test cross-country flights: (*a*) a three-cornered course of 200 kilometres in all, using the same machine, to be completed in 48 hours and touching at two intermediate stations; the shortest side of the triangle not to be less than 20 kilometres; (*b*) a straight non-stop flight of at least 150 kilometres in a direction previously indicated; (*c*) a flight of not less than 150 kilometres in a straight line to be completed in one machine in one day between sunrise and sunset, one landing optional. All these flights to be made without passengers. The flight (1) can be carried out during any of the above (*a*)—(*c*).

GERMANY.

DISASTER TO "L.1."—On September 10th the "L.1.," Germany's first air-cruiser, was carrying out manœuvres in the vicinity of Helgoland, and started at noon on a 30-hours' test voyage. The airship was cruising at an altitude of 1,300—1,500 metres. The weather had become very squally, the ship was thrown downwards by the force of the wind, and refused to answer her helm, and Captain Hanne endeavoured to save the ship by descending to the sea, but the rapidity of descent could not be stayed, the horizontalising rudder refusing to act, and the ship plunging stern-first into the sea, burst and sunk. There was a crew of 20 on board and of these only seven were saved. The "L.1." was built at the Zeppelin Works in Friedrichshaven, and was taken over last October by the Navy. She was 160 metres long, 15 metres in average breadth, and had a cubic measurement of 22,000 metres. She was supplied with three Maybach motors, developing a speed of 50—55 miles an hour, and equipped with apparatus for wireless telegraphy with a communicating radius of some 350 miles.

On the same day at Leipzig, the airship "Zeppelin 5" could not be brought into her shed owing to the strong cross wind. She was being held down by a party of 150 soldiers when an especially violent gust carried the ship upward, and four soldiers, not leaving go of the ropes, were carried aloft. Two privates fell from a height of 150 metres and were killed on the spot. The ship was successfully housed later.

RUSSIA.

AIRCRAFT PROJECTILES.—The military authorities are now organizing a competition (international) for the purpose of discovering the most effective means of supplying their dirigibles and aeroplanes with an apparatus for discharging projectiles, of a weight for the former of 25-30 kg., of the latter of 10—15 kg.; also for dropping shells or bombs containing inflammable matter. Competitors must engage to permit Russia only to benefit by inventions receiving prizes. The tests are, for dirigibles: discharge of five projectiles from a height of between 700 and 1,000 metres (varying at each discharge), first at fixed points such as bridges, railway stations, etc., then against moving objects, *e.g.*, ships; for aeroplanes: the dropping of five projectiles (light) upon similar targets from a height of at least 650 metres.

NOTICES OF BOOKS.

History of the 30th Lancers (Gordon's Horse). By Major E. A. W. Stotherd. (Gale & Polden, Ltd.)

This volume, albeit one of slender proportions, is a welcome addition to the military histories. The author writes concisely, evidently with great accuracy, and his descriptions of the events when his regiment has been engaged on active service are graphically told.

After tracing the origin and evolution of the Hyderabad Contingent Cavalry, from which the distinguished regiment under consideration sprang, he narrates how it successively was known as the 4th Nizam's Cavalry, the 4th Cavalry (Hyderabad Contingent), the 4th Lancers (Hyderabad Contingent), and lastly as the 30th Lancers (Gordon's Horse). And here we may remark that the family of the Gordons of Park, between the years 1759 and 1857, raised no less than seven regiments; of these the 30th Lancers was the fifth, and was raised in 1826 by Captain Sir John Bury Gordon, 13th Light Dragoons. The opening chapter already mentioned gives with great clearness many details of the establishment, pay, horses, and composition as to native soldiers in the force which hardly more than a decade ago we knew familiarly as the Hyderabad Contingent.

Following on this, we are told the military record of the regiment, and a stirring one it is; how, quite as a young regiment, it was almost immediately employed on active service against the Naiks, Pindarees, Rohillas, Bhils, and other lawless, marauding tribes; and indeed fighting or endeavouring to force their opponents to come to hand grips was the normal condition of the corps.

A curious regimental custom is noted, and is worth quoting: "No men wounded in the back need ever expect promotion."

In a case which occurred when a detachment was sent out on duty and failed, a *panchayat*, or native court of the risaldar and jemadars, tried the delinquents. The decision being that all but nine were blameworthy, all the rest were immediately paid off and dismissed. Byam's great march of 588 miles in 31 days through dense jungle and over wild hills in 1831 was an achievement of which any regiment would be justly proud.

Later, in the dark days of the Mutiny, the regiment added much to its fame; and, be it remembered, the Hyderabad Contingent remained not only loyal to the Raj, but the effect of its loyalty was indeed far-reaching on the disaffected in Southern India. Major Stotherd tells, and tells well, of the Siege of Dhar and of other combats which preceded the coming of Sir Hugh Rose.

Later, on the formation of the Central India Field Force, we read of the operations around Jhansi, the siege, storming, and capture of that stronghold, the flight, the misdirected attempts at a rally made by the

Rani, and of her death. Then follows the recapture of Gwalior, which almost closed the campaign as far as the regiment was concerned.

We next find the regiment engaged in the third Burmese War, as they were ordered to that country early in 1888; and here again good service was performed. A most useful and apparently very complete chapter follows on the uniforms of the regiment at various times. A biographical notice of each of the Gordons concludes the historical portion of the book.

Three appendices follow, in which are recorded chronologically the register of the commandants, the officers of the regiment, and, lastly, the personal list for 1911.

A clear sketch-map of the campaign during the Mutiny is given, and a dozen or more illustrations, some those of British officers, others of native officers and men, are scattered through the pages.

The military history is so clear that one would fain have had from the same pen a chapter on regimental sport. That the regiment has produced not a few mighty hunters we know—notably Hastings Fraser. His trophies of heads, horns, and hides were, to say the least of them, extensive. We must heartily congratulate Major Stotherd in conclusion on his excellent work.—C.J.

A History of the Zulu Rebellion, 1906. By J. Stuart. London. MacMillan & Co., Ltd.

A brief account of these operations was published shortly after they occurred by one who took part in them; something again concerning events of this rebellion may be read in a history of the Natal Police which has recently appeared; but this is, so far as the reviewer is aware, the only complete history of this episode in the life of the Colony which has been published or which is likely to be. Mr. Stuart's book is in a measure an official publication; it was undertaken by him, when holding the office of Assistant Secretary for Native Affairs, at the request of the Government, and official reports and records of all kinds were freely placed at his disposal. When, however, the Union of South Africa was established the new Minister of Defence found himself unable to uphold the decision already come to, and Mr. Stuart was then informed that if he proposed proceeding with the work it must be on his own responsibility and at his own expense. If in one way the book has lost something by the relinquishment of an official *cachet,* it has gained in other respects in a certain freedom of treatment impossible in a work produced "by order." The writer was singularly well equipped for the duty originally entrusted to him and which he now decided to carry through, trusting to unofficial support; he held the rank of captain in the Natal Field Artillery; he had served as intelligence officer during the operations he describes; and in the government appointment which he held he had for many years given very particular attention to the history and customs of the nation which had broken into rebellion. It is the experience and knowledge acquired in the Secretariat for Native Affairs which enable the author to provide the most informing chapters with which his book opens, on the system of native administration in Natal, the state of military organization on the outbreak of rebellion, and the Zulu military and connected customs and rebel organization. These chapters are very necessary to a proper understanding of the many difficult questions involved, and are in themselves sufficient proof that the recording of all that subsequently

transpired and arose out of the conditions therein so clearly described, was entrusted to the man best qualified to complete the work. The military preparations and the operations which resulted are all very well told; the colony had the required leaders and there was no difficulty whatever experienced in obtaining the men needed for the work on hand; the young men of Natal not only came readily forward, but they were all trained to arms and could at once take their places in the different units called up for service, with the result that Natal was able, without Imperial assistance, but with some help from her immediate neighbours, to put down a rising which might very easily have assumed proportions too great for Natal, single-handed, to have attempted to grapple with. Readers of this book will probably recognize the forbearance which, under terrible provocation, was generally shown; that while force was ever usefully and quickly employed, it never degenerated into license or cruelty; and that in repressing a rebellion of savages much must necessarily take place which civilized people in England may possibly condemn, but which not less civilized persons on the spot know to be imperative. Mr. Stuart believes that the essential spirit of rebellion is still abroad, that we may expect periodical outbreaks of this kind, and even on a larger scale; and he gives as a reason for these views the increasing desire of the natives to control their own affairs, not on European lines, but on those sanctioned by the collective wisdom of their own race.

This book is fully illustrated and the maps are quite satisfactory.

The 85th King's Light Infantry. By "One of Them." Edited by C. R. B. Barrett. London. Spottiswoode & Co., Ltd.

The battalion of the line whose life and services are herein chronicled was the third regiment to bear the number 85, but its two predecessors existed for but a very short time—no longer than four years, but all three were raised as or became light infantry corps. The first of these regiments, known as the Royal Volontiers or Craufurd's Regiment, was raised in 1759, served at Belleisle and in Portugal, and was disbanded in 1763. Another 85th came into being in 1779 as the Westminster Volontiers, was sent straightway to Jamaica, where it suffered terribly from sickness, and then, on its way home, participated in the maritime disaster which overtook the fleet and convoy under Admiral Graves. This regiment was disbanded in 1783. Ten years later the Bucks Volunteers were formed by Colonel Nugent, an officer of the Guards, who afterwards rose to the rank of Field-Marshal, and in March, 1784, the corps he had called into existence was numbered the 85th Regiment of Foot. Towards the end of 1794 the regiment proceeded to Holland, joining the Duke of York's Army then on the Waal, and returning to England in the following April. Four years later it formed part of the Expeditionary Force sent to the Helder and served in that campaign in the brigade commanded by Sir Eyre Coote. In September, 1808, it became a light infantry corps, receiving instruction in its novel and special duties from Baron de Rottenburg. Thereafter the 85th took part in the disastrous Walcheren expedition, and after its return home was, in 1811, sent to join Wellington's Army in the Peninsula, arriving in time to share in the battle of Fuentes d'Onoro and in the first attempt upon Badajoz. At the end of 1811 the 85th, doubtless still suffering from Walcheren fever, had become greatly reduced in numbers, and was, in accordance with Wellington's usual practice with

single battalion regiments, sent home to recruit. Returning, however, to Spain in 1813, the 85th were employed in the siege of S. Sebastian and in the operations round Bayonne. No sooner had the fall of Napoleon permitted of peace being concluded in Europe, than the regiment was sent to America, serving under Ross at Bladensberg and Washington, and with Pakenham and Lambert at New Orleans. For the majority of the regiments composing the British Army the long period of peace which followed was broken by Waterloo, by the operations in the Crimea, by the hard fighting in India; but for the 85th the days of quiet which followed upon New Orleans endured even unto 1879, when on the outbreak of the second phase of the second Afghan War the regiment proceeded to Kohat, joining General Fraser-Tytler's Brigade of the Kurram Division, and taking part in the operations in Miranzai and Kurram. The remaining chapters, constituting perhaps the most interesting and vividly written part of this history, describe the distinguished services of the regiment in the 19th Brigade under General Smith-Dorrien in the South African War—services which are fresh in the memory of all who followed that struggle, and which do not suffer by comparison with the earlier history of the 85th, recorded in preceding pages. Mr. Barrett has acquitted himself well of a task always difficult, and rendered here apparently more than usually so by reason of a collaboration the advantages of which are difficult to trace. The book is excellently produced, the illustrations are numerous and good —though the costume of the French soldiers in the frontispiece seems hardly correct for the period depicted—and the maps are sufficiently illuminating. Mr. P. M. Reynolds contributes an interesting chapter on "Dress and Equipment," while in the appendices will be found the rolls and other information necessary to complete a regimental history.

FOREIGN PERIODICALS.

NAVAL.

AUSTRIA.

Mittheilungen aus dem Gebiete des Seewesens. **August, 1913, No. VIII.**—Initiative and Independence of action, the two bases of military efficiency. The French naval manœuvres in the Mediterranean. The naval battle in the Korean Straits, May 27th—28th.

FRANCE.

Revue Maritime. Paris: **June, 1913.**—Observations on the military spirit.† Contraband of war and the Declaration of London.† Note on forced draught.§ A forgotten French Port.† A project of 1798 for the establishment of a naval arsenal at Algiers. **July, 1913.**—Observations on the military spirit.§ Contraband of war and the Declaration of London.†

*—to be continued. †—continued. §—concluded.

The stoke-hole in a battleship of 18,000 tons. The past, present and future of Spain as a naval Power.† **August, 1913.**—Contraband of war and the Declaration of London.§ The past, present and future of Spain as a naval Power.† The storage and issue of bedding in the Army and Navy.† A forgotten French port.§

La Vie Maritime. Paris: **July 10th.**—The admission of master mariners in the Navy. The British Naval Estimates. **July 25th.**—The recruitment of the personnel of the Navy. A benevolent society. **August 10th.**—Rochefort and naval defence. Conferences on maritime law. Our policy of naval construction. **August 25th.**—Our Navy. The Central Society for the Succour of the Shipwrecked.

Moniteur de la Flotte. **July 5th.**—New rates of pay of officers and men. **July 12th.**—Historical studies. The naval manœuvres in northern waters.† **July 19th.**—Naval manœuvres in northern waters. **July 25th.**—Scouts. Naval manœuvres in northern waters. **August 2nd.**—Coal as fuel supply. The Navy in Parliament. **August 9th.**—Promotion. **August 16th.**—Gunnery schools in 1913. **August 23rd.**—The cadres of officers. **August 30th.**—Training-ships.

GERMANY.

Marine Rundschau. Berlin: **July, 1913.**—Artillery and tactics. An international set of rules for wireless telegraphy. A new method of estimating the fighting value of men-of-war.† **August.**—The study of naval history by means of biographies. The French naval manœuvres of 1913. Germany and the education of Young China. A new method of estimating the fighting value of men-of-war.† The completion of the Panama Canal.

ITALY.

Rivista Marittima. **July—August.**—The application of modern principles to naval astronomy and hydrography. The war between the Balkan Allies, July, 1913.

MILITARY.

AUSTRIA-HUNGARY.

Kavalleristische Monatshefte. Vienna: **July—August, 1913.**—Cavalry in the Battles of Grossbeeren, the Katzbach and Dennewitz. Cavalry of the smaller German contingents in 1813. The perfect cavalry leader. A proposed organization for the Austrian cavalry. Principles of, and training in, reconnaissance. Scheme for training cavalry officers in patrol work. The equitation manual of the Russian cavalry.§ Remarks on this year's *Concours hippique* at Budapest. Italian horsemanship. Calculating or thinking horses? The Cossack hosts of Russia (their history and present-day importance). Horses and automobiles. Defects of eyesight in the horse. New measures to deal with the horse-breeding crisis in France. Veterinary advice.

Streffleur's Militärische Zeitschrift. Vienna: **June, 1913.**—Austrian Army order on the twenty-five years' jubilee of the reign of the German Emperor. Deeds of heroism in the VIIIth Army Corps from 1792

*—to be continued. †—continued. §—concluded.

to the present day.† Progress in the Austrian Army during the last half-year. Reflections on the Army manœuvres in North Hungary in 1911.* New regulations. The war in the Balkan Peninsula, 1912—13.† The work done by the field hospitals of the Austrian Red Cross Society in Podgorica in 1912. Persia during 1912. Communications from the School of Musketry: infantry fire against air-craft. Notes on foreign armies (Germany, France, Italy, Russia and Greece). Technical notes: the destruction of wire entanglements (with plates). **July, 1913.**—Deeds of heroism in the VIIIth Army Corps from 1792 to the present day.† French Illyria.* Reflections on the Army manœuvres in North Hungary in 1911.* The war in the Balkan Peninsula.† Events in Lybia after the Peace of Lausanne.† The motor wagon in the supply of an army. The School of Musketry: the co-operation of the three arms. The machine gun, model 7/12. **August, 1913.**—Deeds of heroism in the VIIIth Army Corps from 1792 to the present day.† French Illyria.§ Tactics of fortress warfare. New Regulations for the training of the Russian Field Artillery. The war in the Balkan Peninsula.† Events in Lybia after the Peace of Lausanne.† The School of Musketry: motion of projectiles in the air and their influence on the construction of projectiles. Notes on foreign armies (Great Britain, Italy, Russia, Japan and China). Technical notes: armoured motor cars, etc.

BELGIUM.

BULLETIN DE LA PRESSE. **July 15th, 1913.**—Lines of communication of the Bulgarian armies.† The French manœuvres in the West in 1912.† The Danish Army.§ **July 31st.**—Lines of communication of the Bulgarian armies.§ Notes on the tactical employment of machine guns.† The French manœuvres in the West in 1912.† Foreign military news. Foreign military journals. **August 15th.**—The French manœuvres in the West in 1912.† Notes on the tactical employment of machine guns. **August 31st.**—The British Army.† Regulations on the promotion, etc., of the officers of the Roumanian Army. The French manœuvres in the West in 1912.† Foreign military news. Foreign military journals.

REVUE DE L'ARMÉE BELGE. **May—June.**—The Balkan War of 1912—13. Notes on the fire of an observation battery. Fire tables of the Belgian Mauser. The reading of maps. The divisional cavalry of the past. Attack and Defence of barrier fortifications.

Numbers for July—August not yet received.

FRANCE.

REVUE MILITAIRE DES ARMÉES ETRANGÈRES. Paris: **July, 1913.**—The Army manœuvres in England, 1912. The new German Army Law. **August, 1913.**—The new German Army Law. The Norwegian Army.

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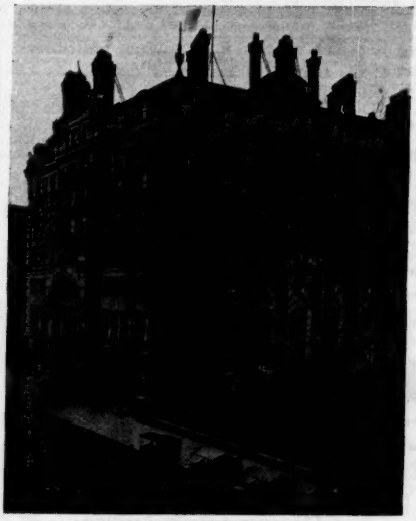

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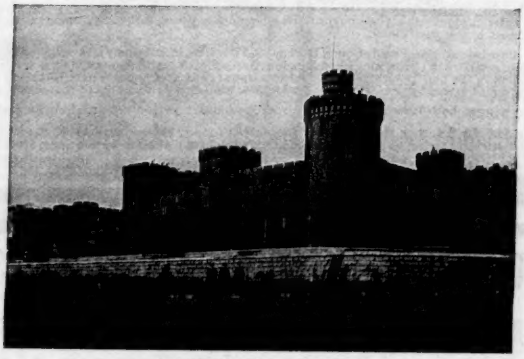

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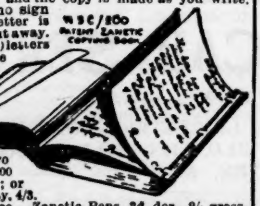

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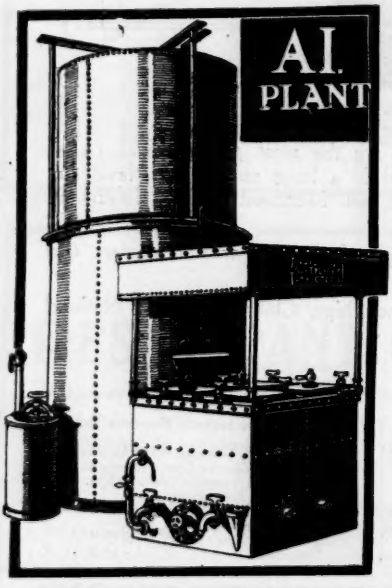

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